JOURNAL

OF THE

Michigan Schoolmasters' Club

FORTY-FIFTH MEETING

Held in Ann Arbor, March 30, 31, April 1, 2, 1910

ANN ARBOR, MICHIGAN
PUBLISHED BY THE CLUB

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Michigan Schoolmasters' Club

PROCEEDINGS OF THE FORTY-FIFTH MEETING, HELD AT ANN ARBOR, MARCH 30, 31, APRIL 1, 2, 1910

EDITED BY THE SECRETARY.

GENERAL MEETINGS

The forty-fifth meeting of the Michigan Schoolmasters' Club began on Wednesday, March 30, with meetings of the Classical, Modern Language, and Physiography Conferences.

The general meetings of the club were held on Thursday and Friday mornings in University Hall. Thursday morning was given over to the teachers of the Classics. Papers were read by Professor E. K. Rand, of Harvard, Professor R. M. Wenley, of the University of Michigan, and Professor Paul Storey, of the University of Chicago. Friday morning the topic for discussion was: Conservation of the Child. Dr. Henry Goddard of Vineland, N. J., spoke upon one phase of the subject, i. e., "The Child as Affected by Ancestry and Early Conditions." Dr. C. O. Probst, of Columbus, Ohio, spoke upon another phase—"The Duty of the State in Education of the Child." And Professor C. H. Johnson, of the University of Michigan, spoke upon the phase, "Mental Conservation of the Child." All of these papers will be found to be interesting reading for the members of the club.

On Thursday night, Mr. Frank Leverett, of the State Geological Survey, gave an address entitled: "History of the Great Lakes."

On Friday night an address was given by Professor W. A. Noyes of the University of Illinois, upon the subject, "A Scientific Revolution."

The different Conferences held their meetings on Wednesday, Thursday, Friday and Saturday and were largely attended.

The plan adopted by the executive committee of admitting teachers to the meetings of the club by badge or ticket proved to be an excellent thing. Not only did the teachers enjoy the meetings better for having paid their full share of the expenses, but they also increased the membership roll two-

fold. This will enable the club to obtain good speakers and more of them for its meetings.

Some of the pleasant features of the meeting were the annual supper of the alumnæ of the University of Michigan given in Barbour gymnasium, the young ladies' classes in gymnastic drills and basketball game, the organ recital given by Mr. Earle V. Moore of the School of Music, the reception given by Professor and Mrs. Kelsey, and still another one held by a committee of the club, of which Prof. A. S. Whitney of the University was chairman. The meeting was one of the largest and best in the history of the club. The Secretary publishes every paper placed in his hands by the chairmen of the conferences.

EUGENICS: THE CHILD AS AFFECTED BY ANCESTRY AND EARLY CONDITIONS.

DR. HENRY HERBERT GODDARD, DIRECTOR OF DEPARTMENT OF PSYCHOLOGICAL RESEARCH, NEW JERSEY TRAINING SCHOOL FOR FEEBLE-MINDED BOYS AND GIRLS, VINELAND, N. J.

Ladies and Gentlemen, and Members of the Michigan Schoolmasters' Club:

It gives me great pleasure to come out here and address you because Michigan has the reputation of doing things, and I feel that I have come to a place where the conditions have only to be known in order to result in action.

In Michigan you raise apples as we do in my native state of Maine. Now there are good apples and bad apples. There are two kinds of bad apples. There are those that are hard and sour and bitter. There are those that have decayed.

I suppose it would not be possible to find in the whole state of Michigan any person so foolish as to attempt to make a hard, sour and bitter apple, sweet and soft and palatable by any process of training or exercise;—by keeping it warm or keeping it cold. It would be recognized at once that such an apple came from an ungrafted tree and nothing was to de done except to turn to the tree.

Equally absurd would it be to attempt to restore a rotten apple, by putting it among good apples, or by any process of treatment to bring it back to soundness.

It is curious that we are so much wiser in our ideas about apples than about cihldren, and yet the same holds true of children. There are good children and bad children. Although the most of what we call bad children are not bad at all. But a great many of the so-called bad children are precisely like the hard, sour and bitter apple. They have grown on an ungrafted, uncultured tree, and it is just as useless to try to make them good, (I use

the term "good" in the sense of moral,) as it is to try to make these apples good and palatable. Of the children that correspond to the apple that has become rotten, I have nothing to say at the present time, except to admit that there are children who have lived so long in a bad environment that they have really become so thoroughly bad throughout that reformation is practically impossible.

But it is of the other kind of child that I wish to speak and concerning whom I wish to tell you some things that we have found out from our studies.

In the first place I want to tell you what very few people realize that there is a relatively large group of children that are distinctly sub-normal by heredity or by early environment. We have them in our public schools. We have them in our classes. They do not keep up with their fellows, and they cannot. We have long known that they do not, but we have not realized that they could not. They are a type of child that excites our sympathy and pity, and we are constantly struggling with them, ever hopeful, ever looking forward to the time when they will take a start, and pick up and go along normally. We say, "if it were not for this or that or the other, they would be all right." And so we will work with them and they will come out all right in the end.

Unfortunately for our education in regard to the group, this is occasionally true. It does happen sometimes that a boy that has appeared stupid to us suddenly blossoms out, and becomes even brilliant, but such cases do not affect the fact that there is a large group that are distinctly sub-normal. It is of this that I wish to speak.

At Vineland, New Jersey, there is an Institution for the Feeble-minded, which some four years ago conceived that its highest mission in the world was to find out something about this group of feeble-minded children. Accordingly it opened a laboratory for psychological research. We have now been working at this problem for four years and have found out a few things of value. Among others, we have made a study of the growth curve of these children, and we find that defective children do not grow like normal children. The most defective are to be sure far below the normal, but I shall not speak of them, only of this highest group which is never recognized as being sub-normal by anybody but the experts. We find that this child stops growing from two to three years earlier than the normal child, thus showing that he is distinctly different in the amount of growth energy he possesses. Secondly, we have tested the will power of these children as manifested by their strength of grip. Here we find the highest grade of these children doing only from 15% to 20% as much as normal children of the same age.

But the point that I wish to dwell the most on is the one with which I began; namely, that the hard, sour and biter apple grew on a bad tree; and these children that we speak of who are sub-normal in mental capacity, have come from sub-normal stock, and I wish to present you here a few charts

showing graphically what our studies of the ancestry of these children has given us.

Squares represent males; circles females, the two superposed mean sex unknown. When striated they indicate some condition worthy of note in connection with the family history, e. g., with A. added means the individual was alcoholic; T., tuberculous; S., syphilis; D., deaf; N., neurotic; Par., paralysis; Cr., criminal. With no letter = died in infancy.

Unlined circle or square with N. in it means Normal Person; without any letter means no data.

All black means Feeble-minded. Circle with black center means miscariage; m. = married; d. = dead.

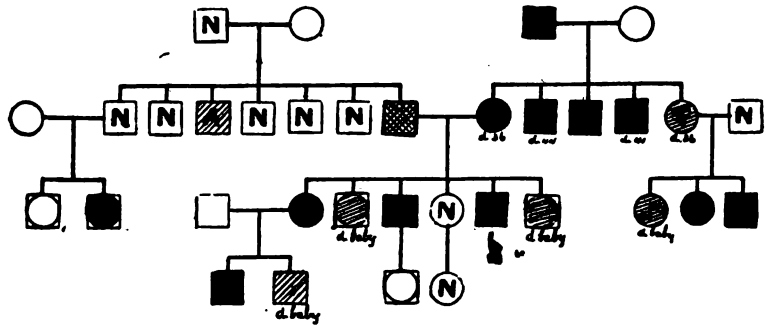

CHART I.

Chart I. The child represented on this chart is a very good illustration of the theme of this paper: namely, that a very high grade child often has a bad ancestry. This boy, now about twenty years old, has been very highly trained and is an excellent institution helper. He is a teacher in the school, and trains the younger and lower grade children with most excellent results. He would be entirely incapable of taking care of himself out in the world, and if he were turned out today, he certainly would land in the almshouse, or in jail.

As will be seen from the chart, he has a feeble-minded sister, and a feeble-minded brother. There were two other children that died as babies, while one sister is normal and has a normal daughter. The father was of good family but degenerate. The mother was feeble-minded and had three feeble-minded brothers, one sister that was tuberculous. This sister married a normal man and they had three children, one of whom died as a baby; the other two are feeble-minded. The grandfather was feeble-minded.

We have then twelve feeble-minded individuals in this family in four generations.

Chart II. This is also a relatively bright little boy, eleven years of age, the child of a prostitute and probably a feeble-minded man. This mother had a sister who was like herself, a prostitute, another sister that was feeble-minded. There were two sets of twins, both of whom died in infancy,

and four normal people. The normal members of this family have all had normal children. The parents of these, the grandparents of our boy, were on the grandfather's side all normal; on the mother's side we had a feeble-minded woman, who was married to a second husband that was feeble-minded. They had only one child, which died at birth. It weighed eighteen pounds. She also had an illegitimate daughter who married and had three children, one of whom died in infancy, one was feeble-minded, and the other unknown. Going back to the fourth generation, we find that the great grandmother was also a prostitute and feeble minded.

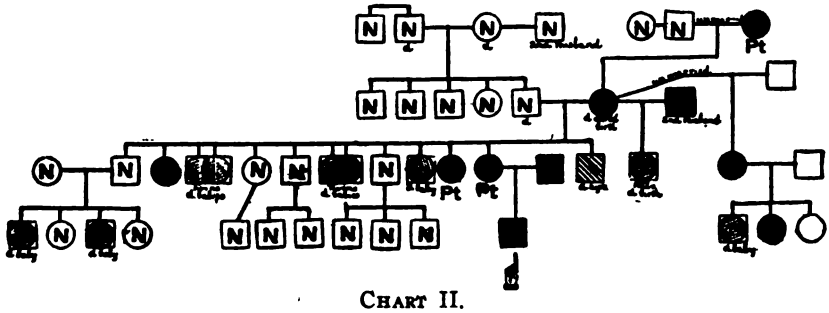

CHART II.

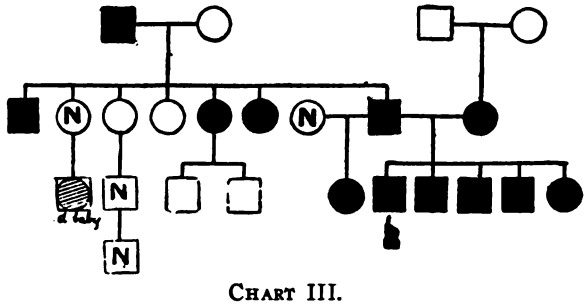

CHART III.

Our child here is again one of those that would have appealed to the teacher as very hopeful, dull and backward to be sure, but most anyone would expect that he would come out all right. Yet look at his ancestry! There is no possibility of his ever becoming a normal child.

Chart III. Shows us two feeble-minded parents having five feeble-minded children. The paternal grandfather, however, seems to have been the one that transmitted the defect on the father's side.

Chart IV.. Is particularly interesting as showing the mental defect running thru four generations, and thru the mother's family in three of these, altho there is defect on the male side also in the third generation.

The tuberculous maternal grandfather of our child had a feeble-minded sister; she married and had nine children of whom four were feeble-minded.

Chart V. Shows the maternal grandparents feeble-minded, and they have as always only feeble-minded offspring—two girls. One of these married a feeble-minded man whose brother was feeble-minded and a criminal, and a sister was disgracefully alcoholic. However, another normal brother married a normal woman and had six normal children. The offspring of the feeble-minded woman and this feeble-minded man were: three feeble-minded children and two others that died in infancy. An illegitimate son of the woman is feeble-minded and a criminal.

Chart VI. The feeble-minded paternal grandmother of our two children married an alcoholic and immoral man;—result, four feeble-minded children. One of these became alcoholic and syphilitic and maried a feeble-minded woman. She was one of three imbecile children born of two imbecile parents. The result here could, of course, be nothing but defectives. There were two still-born, and three that died in infancy. Six others lived to be determined feeble-minded. One of these was a criminal. Two are in the institution at Vineland. The mother's sister also has a feeble-minded son.

Chart VII. Perhaps adds nothing new for heredity, mainly emphasizing what we have already seen. However, for a social study, it is perhaps the best of anything we have yet found. Here we have a feeble-minded woman who has had three husbands, (including one "who was not her husband,") and the result has been nothing but feeble-minded children. The story may be told as follows:

This woman was a handsome girl, apparently having inherited some refinement from her mother, altho her father was a feeble-minded, alcoholic brute. Somewhere about the age of seventeen or eighteen she went out to do housework in a family in one of the prominent towns of this state. She soon became the mother of an illegitimate child. It was born in an almshouse to which she had fled after she had been discharged from the home where she had been at work. After this, charitably disposed people tried to do what they could for her, gave her a home for herself and her child in return for the work which she could do. However, their confidence and help was misplaced,—she soon appeared in the same condition. An effort was then made to discover the father of this second child, and when he was found to be a drunken, feeble-minded, epileptic in the neighborhood, it was thought that they should be married. The good friends saw to it that the ceremony took place. Later another feeble-minded child was born to them. Then the whole family secured a home with an unmarried farmer in the neighborhood. They lived there together until another child was forthcoming which the husband refused to own. When finally the farmer acknowledged that it was his child, the same good friends interfered, went into the courts and procured a divorce from the husband, and married the woman to the prospective father of the fourth feeble-minded child. They have since had four other feeble-minded children, making eight in all. There has also been one child still-born, and one miscarriage.

As will be seen from the chart, this woman had four feeble-minded

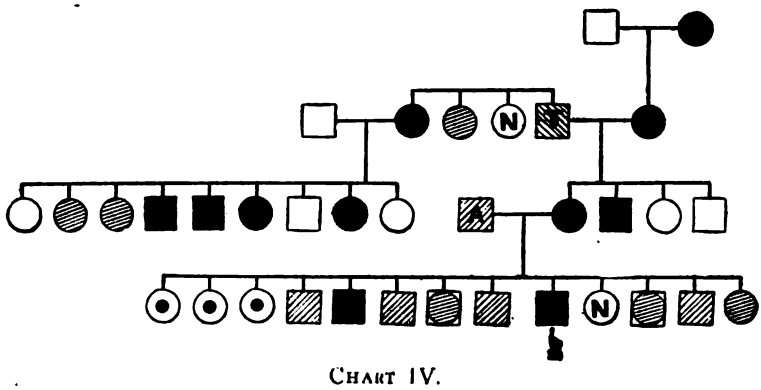

CHART IV.

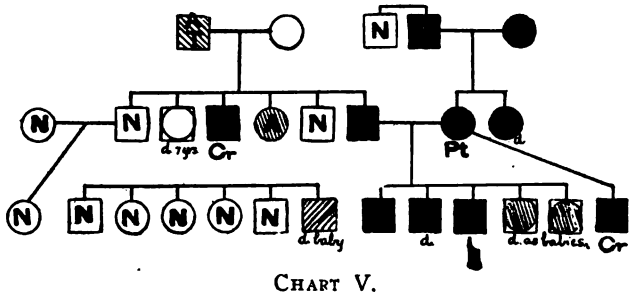

CHART V.

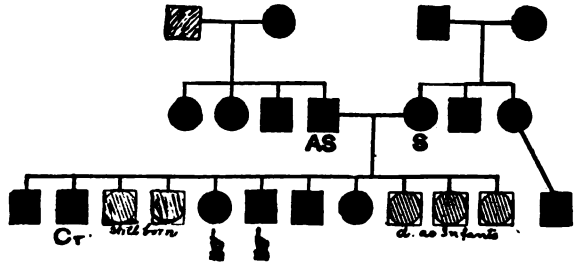

CHART VI.

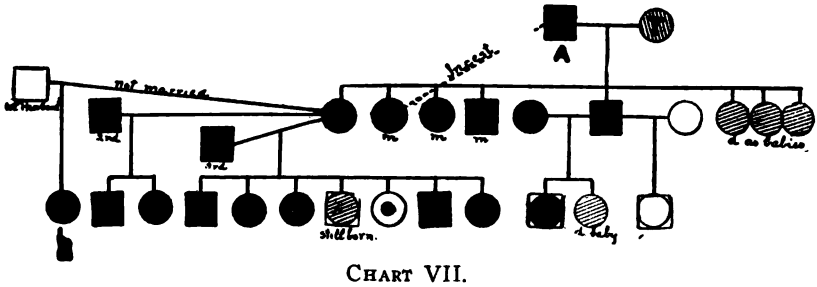

CHART VII.

brothers and sisters. These are all married and have children, but we know nothing of any except two of them. One of these is feeble-minded and the other died in infancy. The mother had three other sisters that died in infancy.

Chart VIII. Is in some ways the most astonishing one we have. There are in the Institution at Vineland five children representing, as we had always supposed, three entirely independent families. We discovered, however, that they all belonged to one stock. In Chart VIII. the central figure, the alcoholic father of two of the children in the institution, married for his third wife a woman who was a prostitute and a keeper of a house of illfame, herself feeble-minded and with five feeble-minded brothers and sisters.

This woman had had three illegitimate children, which, however, are generally referred to this man. After their marriage, they had three other children, all of whom are feeble-minded. Two of these are in this institution.

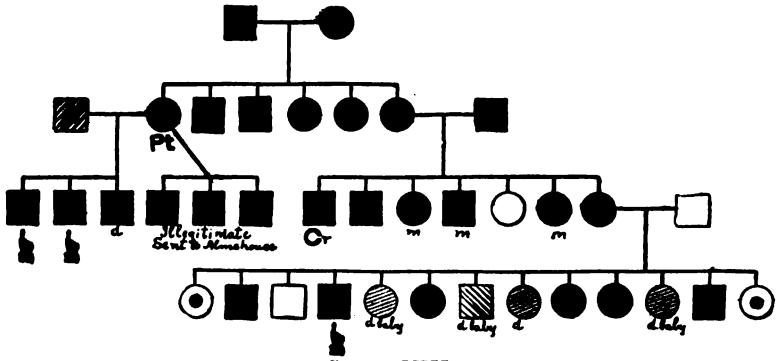

CHART VIII.

A sister of this woman married a feeble-minded man, and the result of that union was six feeble-minded children, one is a criminal, and one an epileptic; three are married. This feeble-minded epileptic woman married a man who is one of a fairly good family. As the result, however, of this marriage, we have six feeble-minded children, four others that died in infancy and there were two miscarriages.

These are a few samples out of many histories that we have on file in our laboratory, and let me remind you that I am giving you no exceptionally bad picture. This is the condition of things that exists all about us. We have these mentally defective children in every community. They are of such a high grade that they are not usually recognized. They are out in the world struggling to make a living, but failing, eventually become paupers, or criminals, or dependents upon their relatives or friends, in any case very probably marrying and reproducing their kind at an alarming rate. Statistics show that this group of people is increasing at double the rate of the general population. These children comprise from one to two percent of the children in our schools. They cannot learn to read and write and count, with

any efficiency, and yet we are wasting their time trying to teach them these things. The thing that they can do is to learn to use their hands. Manual training, physical culture, and the like are excellent for them, and make them happier and make them as useful as they can become. They often have excellent memories and learn so much by rote that we are deceived into believing that they are making progress.

The problem before the school authorities of the country today is the segregation of these children, the selecting out from the regular classes and puting them together in special classes under specially trained and expert teachers where they shall be trained to do whatever their capacity permits, but shall not be worried with those abstract subjects of reading and writing which they can never do. In this way we shall relieve the regular system and we shall do more good for these children than in any other way. Cease worrying them with books; teach them to work and thus make them happy. But however efficient we make them as workers with their hands, we must never forget that if they marry they reproduce their kind, and again fill our schools with defective children with whom the same process will have to be gone thru.

The only thing for society to do is to prevent procreation in this group, and then in a generation the problem will be greatly reduced and simplified.

It is a comparatively simple matter to establish these special classes, and once let the parents of the normal children realize how much their children are benefited by having these defectives removed, and we shall have the complete support of the entire community. If any complain that it adds to the expense of the public school system, it is easy to show that it is cheaper to take care of these people in the public school than in almshouses and jails. It is better to train them to do something useful than it is to have them grow up in ignorance and become paupers and criminals. They now make up from 12% to 30% of our criminals, a large percent of our paupers and a still larger percentage of prostitutes.

I am glad to know that Michigan already has some special classes and that more are being contemplated, and I hope that it will not be long until you have one of the best systems of special classes in the country.

THE DUTY OF THE STATE IN THE EDUCATION OF THE CHILD.

DR. C. O. PROBST, COLUMBUS, OHIO.

Society for centuries has been founded upon the home. Parental authority and parental responsibility were seldom questioned. Children were educated at home or in private schools. The boys were apprenticed and taught some useful occupation or trade. The State gave scant heed to the mental or physical welfare of the child.

All this has changed. We have compulsory education; child labor laws; juvenile courts. The State takes forcible possession of the child in spite of its parents and thus disposes of its destiny. It is assuming a greater and greater responsibility for the child. It is encroaching more and more upon the duties of parenthood.

Where shall we have the dividing line between the State and the parents in providing for the welfare of the child? We must assume that it is to the interest of the State that every child should have full opportunity for its greatest possible development, morally, mentally, physically. Indeed, I can conceive of no higher interest of the State and no more important function.

At a recent committee hearing upon a Bill for the compulsory medical examination of all school children, now before the Ohio legislature, I was surprised to hear a member express the idea that the child belongs to the State, and that the parents are only its trustees.

This dividing line between parents and State once seemed clearly defined. The State was to do nothing for the child that could be equally well done by its parents. This line will be accepted by many, perhaps the majority, today.

We may well consider the effects upon the parents when the State steps over this boundary. The most valuable training for men and women comes from the care they give and the sacrifices they make for their children. Such responsibility is not to be lightly set aside. And yet the State has already encroached upon the duties of parents, duties within their power, in most cases, to perform. When the State sends a physician to the school to examine the eyes of my child it is doing something I should have had done myself. The State *might* have said my child should not go to school without a certificate from an occulist that its vision was normal or effective for school purpuses, and offered to pay for the certificate if I were unable to do so. The State furnishes my child free school books which I am able to buy myself. We do not question the right or the wisdom of this.

It is apparent then that we can no longer say the State should do nothing for the child that its parents are able to do.

What is it that has brought this condition about? It was, probably, because the State found such a large number of parents unable to do certain

needful things for their children, and a much larger number who, though able, did not. It was easier to treat all children alike.

Shall the State, then, make up to the child for parental neglect? This will lead us far afield, but I am inclined to say yes, with some reservations. The child means so much to the State that it cannot afford to see it neglected.

If we can think of the State as a kingly individual whose highest welfare and very existence depends upon the welfare of all of his subjects, we see clearly what should be the relation of the State to the child. Every child born and every child saved is an asset. Every child trained to its highest efficiency is a gain to the State.

The duty and interest of the State in the child begin at its birth. It should come into the world without harm, hence the State should have none but trained, licensed acouchers. Its identity, and therefore its rights of citizenship, should be a matter of record, and so the State should enforce strict registration of births.

The victims of ophthalmia neonatorum, with their helpless, hopeless blind eyes, should make the State, if an individual, turn his head in shame. Do you know that fully one-fourth of the blind in our institutions are sightless through somebody's fault? It is sad to think that this might easily have been prevented at birth with a few drops of a solution of nitrate of silver.

And the parentless or abandoned child! What is the State doing for it? No child should be placed in home or institution except under the supervision of the State. All such children should be wards of the State and be insured proper care, and this be they legitimate or illegimate. I regret to say that in my own State a child *may* be given away as one would dispose of a puppy dog. This does not happen often, but it is possible under the present law. A Bill now before our legislature, which has passed the lower House, will correct this evil.* New York City is sending trained nurses into the homes of new born babes to teach ignorant mothers how to care for them. This may be "paternalism" but it is also life-saving.

It is hard for us to realize that only one baby in five that is born lives through its first year. Here is a loss in this country annually of about 375,000 precious lives. What a gigantic mountain of pain, sorrow and blasted hopes this represents!

The schools stand in a specially responsible relationship to the child, and hence to the State. Many think of the State as so much land, water and forest; of its railroads, industries and institutions. These are but incidental. We cannot have a State without people. The people *are* the State, and its future depends largely upon the children who are in school today. If this be true, what a responsibility, and what an opportunity is yours!

Much is being said and written about the defects of our present school system, and most of it by the school men themselves. I think we can safely

* The bill was passed and is now a law.

leave it to the school men (and women) to bring about necessary changes. Some of us outsiders may help you by arousing and directing public opinion in favor of the things you wish to have done. After all you, like those working in the field of sanitation, are tethered by public opinion and a tight purse string.

A large part of effective health work depends upon precedent education; and, I am here to say, that this education must start in the common schools and continue into the colleges and universities. I will say more than this—an essential part of education is to teach the child how to acquire and preserve a healthy, normal body. Any system of education that does actual harm to the body is a disgrace to civilization and ought not to be tolerated for a moment.

Sanitarians and schoolmen join in proposing Medical Inspection of Schools. I would briefly present my ideas upon this my major subject.

The first inspection of schools related solely to school buildings. Possibly we should propose nothing further until we have succeeded in abolishing the abominably unsanitary school buildings still to be found all over this country.

Who can number the children who have lost health or life by being forced into school rooms where all the sanitary requirements have been violated?

The evils of this condition have been loudly proclaimed by health men and school men for nearly a half century. Conditions have been greatly improved, no doubt, but are still woefully deficient, and why? Lack of money. We know how to build sanitary school houses. And why lack of money? Because the public has not been rightly educated.

Nothing is so precious to a man as his children. If we had some definite school disease, that we might name, possibly, "schoolitis," which children were known to contract from unsanitary school buildings, parents would soon eradicate them. But as parents know little about hygiene and sanitation, never having had an opportunity to learn much about such things when they were in school, they do not understand the indirect effects of unsanitary school buildings in lowering vitality and increasing susceptibility to a host of diseases that are the enemy of childhood.

The second step in medical inspection of schools was for the detection and eradication of contagious and infectious diseases. Needed most in large cities, where people are huddled together, such inspection has become statewide in but one or two states.

The schools in bringing together children from nearly every household are inevitably a considerable factor in the spread of communicable diseases. Parents certainly have a right to demand that every possible precaution shall be taken to guard their children against such exposure.

Following inspection for communicable diseases, and often going hand in hand with it, was the examination of school children for certain physical defects, especially sight or hearing and the presence of adenoids or other

cause for obstructions to breathing. This had primarily in view the fitness of the child for school room purposes.

But given all this, medical inspection of schools (we may find a better name for it) is still far short of its ultimate possibilities and real object as I view it. Physical education should be a large part of school education, and every child should be taught, and, if possible, led to follow, correct habits in personal hygiene.

In a Catholic convent school for girls with which I am familiar, each morning the girls are lined up for an examination of teeth, hands and finger-nails. This teaches personal hygiene in a practical way.

In addition to this, the older child, and the young man and young woman in college, should have a thorough understanding of the main facts regarding public hygiene and sanitation. They should know the essential conditions for a healthy home, a healthy city, a healthy state and a healthy nation. If these things are not learned in school they are never learned by the vast majority of people.

I would rather my son reached twenty-one years knowing nothing more of books than to read and write, but with a healthy, vigorous body and a knowledge of how to maintain it so, than to have him outstrip all his competitors in book learning and come out of it with an enfeebled organism and no correct information of how he should eat, drink, sleep, play, work, or of what are the conditions essential for a healthy home.

I am far from meaning that success in school is usually attended with loss of health; but I do think that our schools and colleges are as far behind their possibilities in developing the body and teaching how to maintain health, as our communities are in providing and mantaining proper sanitary conditions. And as I see it, this is not only a function of the schools, but its most important function. When you have trained a generation or two to know health and value it, such disgraceful sanitary conditions as we now find even in our National Capital will no longer be possible.

Suppose that instead of the present feeble attempt to teach hygiene and physiology in the graded schools, one-half of the time, not only for these schools but for the high schools and colleges, were given up to health matters, including physical culture.

I expect this to be received with an indulgent smile. Perhaps the proposition is not as preposterous as it first seems.

I think no one will very strongly maintain that the information one obtains in school, in and of itself, is of great abiding value. It leaves, at most, a deposit in the mind that helps make up its structure. The main object of schooling, I take it, is to make an effective instrument of the brain, and to teach it how to work to best advantage. We can then easily acquire knowledge that we have use for.

Why could not health problems be used in part for that purpose? Mathematical problems, for example, might also deal with sanitary problems.

If each pupil should have 2000 cubic feet of fresh air per hour, how

many cubic feet of fresh air must enter a school room in five hours, containing 36 pupils?

If the fresh air duct supplying that room is circular and 40 inches in diameter, how many feet per second must the air travel through it to supply this amount of air?

How much water will pass through a sewer drain 2 feet in diameter with a grade of 1 foot to 500?

In the purification of water by filtration, at what rate must the water pass through a sand filter 3 feet in depth to obtain 2½ million gallons of filtered water per acre per 24 hours?

An infinite number of mathematical problems could easily be framed to teach health problems at the same time.

Chemistry and bacteriology would readily lend themselves to a great variety of subjects, all relating to health. So history, and even geography, might help by showing what various peoples have done to promote health, or their losses and sufferings from lack of sanitation.

So far as training the mind is concerned, for memory, for conception, for reasoning, I see no reason why text books could not be written and instructions planned that would accomplish this, and at the same time impart the most useful information a man can have—how to preserve his health. And while you may say that this would displace other studies, I think this need not be so to a great extent; and if it did replace some studies now pursued, from my standpoint, it would be well worth while.

I believe it is becoming more and more recognized that Health is our most valuable asset, either for the individual, or for the combination of individuals that form a State. The reason more attention is not given to the subject is the lack of faith in the claims of sanitary science.

No one knows better the limits of this science than the professional sanitarian. And yet one of its founders, Dr. Chadwick of England, more than half a century ago, said that it was possible to so build and maintain a city that its death rate would vary from 10 to 30 per 1000 inhabitants per annum. Vast gains in sanitary knowledge have been made since that time.

Lack of faith in things that are true can come only from lack of knowledge. How shall this knowledge be promulgated in a way that will enable the largest possible number to secure healthful, happy, useful lives. How else but through the schools and colleges.

Here is where medicine (preventive medicine) and pedagogy should join hands. A new man is needed in school work, the school physician. He should be a specially trained man, a physician, a sanitarian, a teacher, and be attached to the school system and not to the board of health. Working hand in hand with the school man effort should be made to direct each child into the paths that will lead it to its highest possible mental, physical and moral development. This is what education should stand for.

Can one doubt that the money this would require would be well spent?

I have no doubt that it would abundantly pay as a mere matter of dollars and cents.

England never had a larger per cent of rejections on account of physical unfitness than when attempting to recruit for the Boer war. And this was in spite of the fact that she had lowered her requirements, which was the second time this has been done.

Proportions are no doubt distorted as we look out through our own specialties, but I cannot help feeling and repeating that the schools can have no more important function than the physical training of the school child, and its thorough instruction in the essentials for a healthy existence. The child is the State's greatest responsibility and its greatest hope, and only in the schools can the State hope to greatly improve the character of its citizenship.

MENTAL CONSERVATION OF THE CHILD.

PROFESSOR CHARLES HUGHES JOHNSTON, UNIVERSITY OF MICHIGAN.

You are perhaps aware that the Schoolmasters' Club is kind enough to furnish topics for its speakers. Mine is, I am sure, a very red rag to everyone in the audience who has scientific leanings, sympathies, predilections, or prejudices. It is not only reckless nowadays to speak of the child; it is likewise so to attempt to make another issue of conservation. To qualify this with the mental attribute will be to many the last straw. Someone, however, has furnished President Taft with an illustration which is serviceable to one in such a predicament as I find myself. The President has made use of it! A girl is supposed to ask, before setting out to her dancing party, whether she shall dance with the boys or with the music. A college professor of education is always in this dilemma; he must keep some sort of step to the music of scholarship and scholastic tradition. He must also think from the actual conditions of school life, the actual, practical, psychological and social limitations which modify school operations wherever the first democratic steps of the educative process are being undertaken.

It is easy to apply conservation to physical energy, to chemical elements in soils, to timber supply, to water power, to dynamo functions, to labor supply and possibly to denatured childhood; but the passably normal children, of whom there are a great number still—my present interest—demand something other than such quantitative and lump treatment.

Thoroughgoing educational theory starts with childhood. Plato's supervisory scheme begins at birth, Commenius builds his superstructure upon the family school, Rousseau's eloquence is coincident with Emile's babyhood and childhood, Locke and Spencer find the same starting point, and Tolstoy wishes to begin the whole process anew, with the peasant children at Yas-

naya Polyana. As a recent writer puts it, "In all the world there is nothing more ultimate than the primitive voices of the two Rachaels, Rachael weeping for her children and not to be comforted, because they are not; Rachael who said: 'Give me children else I die'."

These representatives of educational idealism have been largely replaced by the G. S. Hall group of radical empiricists, or child study enthusiasts, religiously putting on record discriminating and undiscriminatng observations of baby and child performances, mental and physical. Nobody, it is safe to say, has yet fought his way to comfortable clarity as to the essential issues involved, and nowhere have telling educational practices validated experimentally nor clinched effectively even what in isolated studies has been plausibly claimed.

Meanwhile extensive, complex, and non-dirigible educational machinery has been, as Sir Frederick Harrison remarked, going at breakneck speed like a Cunard steamer racing home,—or like the American factory system, sacrificing quality to quantity, eager for all the raw material, but reluctant to master the refining processes. The fundamental principle of American school administration is that ultimately the people must control the public school. This is no more disastrous, no more falacious, no more experimental than is American civilization and government. The condition is that this very public, ignorant, unappreciative, suspicious, even malicious, interferes, hinders, disregards the above named idealists. Thus far the two forces have mostly worked at cross purposes. One would conserve the theory, the other would tend to be impressed with the machinery, statistics, quantity, show. The children of the *data* for the one, the *raw material* for the other, *children* for neither. Idealists exist within the system despite the system. Those with less hardihood like the escape to the purified (?) college atmosphere for a fresh start, or into business for its supposed rewards, or into wedlock, in the case of the ladies,—for various reasons. A third of the ranks in this great teaching army of one-half million are each year fresh and raw recruits, also for various reasons.

So much merely to say that the conservation of children means a reorganization of the one agency which by national policy and at enormous and increasing expense exists for this implicit purpose. To talk of all the children in any purely ideal way without regard to the school limitations is as absurd as to dream of heavenly flight by escaping the interference of the air.

Inevitably then we should consider briefly, (1) the historical course and present momentum of the school, (2) current adverse and favorable expert criticisms directed at it, (3) the fundamental, active ideals which are becoming articulate, and lastly, certain constructive suggestions which seem promising.

Historically the American school has variable limits, and is a slavish and weakly imitation of European models, preparing literally for a literal college, existing chiefly to send the embryo minister on his way. Like those

of England and Scotland they represent only community issues. Later, mild social upheavals cause them to adapt themselves, somewhat in bewilderment, to a consequent split society, vaguely to enlarge the curriculum, and with little more insight to work over, this time, French models. The Grammar Schools find themselves now overlapping the private academies in function. After the Revolution the so-called growing Democracy, desirous of public control, actually makes universities, avowedly at least, for the people. Borne in on the same wave of 'mental-conservation' enthusiasm came the elementary school; and about the first quarter of the nineteenth century appeared the American high school also. These movements are interpreted to us as hesitating attempts to knit rich and poor in democratic unity, supposed also to be built on the people's judgment and consciously felt need. This administrative dream and architectural design quickly resulted in the ladder logic which is a distinguishing characteristic of the American scheme of education, all marching toward the university apex, admonished to climb as high as possible—and then fall off. In fifty years we see state concern for all these struggling and imitating communities. Legislative action indicates this repeatedly in various ways, Connecticut beginning in 1798. Next in chronological order come the throes of internal organization and external articulation. The multiform curriculum, blind alleys, waste, lack of appeal to all become educational issues.

With this blind and haphazard growth the state university foundations were such as to allow them to pattern largely after German universities or such private institutions as Harvard, with the result that, what directions the schools did get, were largely in the nature of superimposed tasks, for purpose necessarily extraneous to the vital and immediate needs of a large and helpless constituency. This sort of guidance, good in part, and all of any sort in reach, did not prevent the resulting artificiality of what by courtesy we yet call the educative process. Steadily these college restrictions, however, grow more flexible, and ladder logic is suspected of distorting even democracy. The high school accrediting system relieved the pressure in some sections, but added to the elementary routine a no less inexorable grade and promotion machinery. The unit system reacts downward. Society, consequent upon our industrial evolution, now differentiates at too rapid a pace for educational adaptation. Its multifarious and incessant calls are met but poorly. Popularized, supposedly interesting science, Spencer's hobby, and vaguely conceived humanitarian branches, in the name of enrichment, add confusion to bewildered curriculum-makers. Then in more recent times, led by John Dewey, the cry to socialize the child, the curriculum, the very atmosphere, and make over our helpless school into a miniature social and civic community, landed even the theorists, to say nothing of the administrators and teachers, in a jolly, topsy-turvey land. It would be difficult and discouraging to say clearly where the children were being landed. At present we are hearing on all sides from the proponents of vocational education. At our own most recent State Teachers' Association meeting it

appeared, from the agricultural culture there urged, that we were all immediately destined to return intelligently to the soil. (One listener remarked that some would doubtless prefer to be put under it.) M. E. Sadler and his thirty collaborators, after an elaborate world survey prophesy a complete reorganization of the elementary years of school life. Draper of New York State has already instituted far reaching reformations, or, deformations in this specific direction. Massachusetts disturbs at present only the high school organization. The whole affair, as an agency for mental conservation, is a prodigious social, psychological and economic puzzle. It might be stated—"Find the child."

Destructive critics see moral preverseness and intellectual obtuseness underneath the whole modern movement and tendency. Constructive critics see it all as a vital fact, an exigency in a nation's quick growth, an inevitable stage of possible development. The process is not idealized, nor is it conscious of itself from within. The school, though we boast of it as a democratic institution, has not the first mark of such. It is not self-orienting. With so many perspectives, none are compelling. All suggested clues are somewhere followed up regardless of their source. But there is little conservation of good or bad experiments, of educational experience; no secure and confident attitude toward criticism and advice.

The colleges and universities have had no time to study the problems, and the merely formal method of training polishes the superficiality. I quote from David Snedden, Commissioner of Education of Massachussets, as follows:

> The absence of a philosophy of pedagogy in the college has reacted most disastrously on the schools below. Because of their strategic position, the colleges have been able to dictate the standards and to control in large measure the administration of education. Their sway in this field has been to a large extent unintelligent and exasperating, though entirely well-meant. They have imposed standards that have been generally regarded by students of lower education, who possess some pedagogic insight, as narrow, irrational, and unfruitful. These standards have often been highly elaborated from the standpoint of subject matter, but one is tempted to say that in proportion as this has been the case, they have exhibited lack of understanding of the nature of adolescence and the social significance of a genuine education.
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> "Slowly the college is modifying its admission requirements along rational lines; slowly it is building up special departments of pedagogy; but in neither case can the friends of the college detect a co-operative attitude on the part of the faculties themselves. More commonly they seem to have responded grudgingly to a demand forced upon them from the outside. This lack of pedagogic insight on the part of the colleges manifests itself in still another direction. Historically, the chief single function of the American college, so far as practical occupations are concerned, has been the preparation of teachers. More of its graduates have gone into this than into any other field. The college has undoubtedly taken pleasure in this outcome of its work and has developed a variety of agencies to facilitate the passage of its graduates into the schools.
>
> "But in spite of all this, it has quite persistently refused to give to these prospective workers something of the added professional training which would better equip them for their work. Until recently it could be said that the college refused to recognize that teaching in the schools was a profession, in spite of the fact that its graduates were so often making of it a career. The public has been obliged to accept the gradu-

ates, giving them responsible work in the public schools, only to find that their preparation was so incomplete as to entail a large waste in the early stages of their apprenticeship.

"It is an interesting fact in social evolution that those institutions—religious, political and educational; a large part of whose function is the conservation and transmission of the social inheritance—tend periodically to become static and to become detached from the currents of social life in which they find themselves. It would seem that after periods of social unrest the demand for conservation and reinterpretation of the social inheritance is so great as to practically polarize the activities of religious, political and social leaders. They seek to store, to preserve, to rearrange, and to make attractive the experience of the past, but ere long they find themselves out of the current of life and indisposed to work back into it.

"From one point of view this preservative function would seem to be as simple as it is valuable. The world must have custodians of its wealth of ancient culture and customs. At any time the treasure-house should be open and with guides available. Society is largely made up of those who by preference or necessity press forward and who rarely take account of accumulated wisdom. The college has specialized as one institution, assuming to guard and make available the social inheritance.

"Only after a considerable time, when the current has long swept by, does the college find itself in need of extensive readjustment. It would seem that the American college is even now entering on such a dynamic period and that within the next few years criticism and a wide range of constructive measures will be found available.

"The college will perform its full mission to society only when it adds to its primitive one of being a museum and shrine of learning its modern responsibilities of evolving a teaching art and deliberately seeking to keep itself in such immediate relations with the great currents of the time that it can react helpfully on them."

Another interesting phenomenon is that some of these college professors deride child study and pedagogics, forgetting that the same sort of attitude has always been adopted toward all budding science and all systems of philosophy,—forgetting the further fact that teachers and their troubles in adulterating and adjusting subject matter are mostly products of the college system, and not products as is so naively assumed, of professional training from educational departments.

One great philosopher has said, however, that gruelling and tantalizing confusion is the price we always pay for subsequent clarity. If this is true of public educational opinion, the future is full of promise. It is necessary perhaps for us at once then, even if it prove nauseating and revolting, to cite samples of current adverse opinions, as well as of favorable criticisms, of the conserving activities of the school.

A portion of Cattel's message to you, adapted from the January issue of the Popular Science Monthly for 1909, is this:

"The school by its nature weakens the family, for it takes the children away from home and gives them interests not centered in the home. . . . The notion is wide-spread that the more years a child spends in school, the more days in the year and the more hours in the day, the better it is, and that the scholastic trivialities inherited from the idle classes are the proper material for education. . . .

"It is distressing to see methods used that are wantonly destructive. . . . We greatly overestimate the value of the three r's, the two g's and the one s. . . . The residuum of knowledge surviving the eight years of the elementary school is pitifully small. . . .

"The present advantages of reading to the average individual are small. . . . The main benefit of reading for most people seems to be that it is a substitute for alcohol, in which excess does not lead to such harmful consequences. . . . As a matter of fact the average man writes very little, and could get on fairly well without that little. . . .

"One of the most persistent errors of our scholastic methods is the teaching of a child of a certain age with great labor and at the production of much stupidity what could be learned easily and with pleasure a couple of years later. It is possible to teach an infant to walk two months before the body is ready, but bow legs are likely to be the only permanent result. So it may be that the premature use of numbers, apart from any real interest, is actually harmful. The school work in Arithmetic is certainly of very little use. . . .

"The accuracy of spelling secured by school drill is useless; the syntactical limitations injure expression and style. Nothing much can be said in favor of geography, history and literature as they are taught, or for such science as now and then appears. We have a book method, essential for certain purposes, extended for outside the limits of its usefulness. . . . The futile system is supported *ex post facto* by a bad psychology, which claims that the methods used will teach children to observe, remember and reason. Primary education is planned as a preparation for the high school, and the high school course as a preparation for college; the college is for students preparing for the professions and at the same time a club for the idling classes.

"It is not at all clear why the public should pay a thousand dollars for the expenses of each boy who goes through college to enjoy the pleasures of drinking clubs and betting on athletics; and it is surely absurd to let the conventional courses of the college distort every elementary school. . . . We could get on tolerably well without most of these college gentlemen, except only the few who are working to advance knowledge and its applications; and it is, in any case needless to make their production the principal aim of our educational system. The good ones are born fit for their work, and will do equally well whether they learn to read at twelve or at six. . . .

"We look forward to getting some day schools that will make children happier wiser and more useful In the meanwhile we consume on the altars of our schools more property than the lawyers can guard, more health than the physicians can restore and more unborn souls than the clergymen can save. . . . The school shares with the city the bad pre-eminence of being one of the principal causes now working to break up the family. . . . The school supersedes the church as a socializing factor to the injury of the family. . . .

"The health of our children is in large measure conserved by the inefficiency of our teachers. If children really did what our scheme of education asks, the results would be much worse than they are. It is also true that conditions at home, especially in cities, are such that the school may be an improvement. But the ordinary defective eyesight and lateral curvature of the spine are signs of deep seated injury to the nervous system and bodily organs. Schools are centres for the spread of contagious diseases. The sedentary habits are not only injurious at the time, but are likely to persist, and the result is that but few educated people have normal circulations, digestions, and reproductive systems. . . .

"There are in the United States about 400,000 women employed as teachers, and the numbers are continually increasing, fifteen to one. This vast horde of female teachers in the United States tends to subvert both the school and the family. The lack of initiative and vitality in our entire school system is appalling. The influence of our half million teachers on the problems of democracy and civilization is entirely insignificant. The attractive and normal girls and the few able men tend to drop out, leaving the school principal narrow and arbitrary, and the spinster, devitalized and unsexed, as the dominant elements. Boys get but little good from their schooling and leave it when they can. Girls, who need men teachers ever more than boys, predominate in the upper classes. Women are good teachers, especially

young girls with their intuitive sympathy for children and mothers who have bred children of their own, and women are cheaper than men of equal education and ability. But the ultimate result of letting the celibate female be the usual teacher has been such as to make it a question whether it would not be an advantage to the country if the whole school plant could be scrapped."

Draper of New York, whose motto is "Shoppish rather than bookish schools," has this to say in substance:—Common sense . . . has reached a very confident belief that new situations have arisen which the elementary schools do not reach and that something rather decisive must be done to adapt their work to the possible expectations of children that are not going to high schools. Economic, moral, and intellectual necessities demand that they have more definite aims. This social demand, thinks Draper, has come on scheduled time. Schools must meet popular needs. "We have gone on training for the professional and managing vocations until the educational system is unbalanced." "The result has been that our industrial training has until now had practically no relation to our common hand industries." "The net result has, on the whole, actually discredited real craftsmanship." "The public school system has shunted this thing off so persistently and completely . . . that philanthropic, proprietary . . . and manufacturing establishments have taken it up for charity . . . or gain or necessity." Slight impression has yet been made in any way on the actual problem. "Schools illustrate and experiment too much without definite point." "They are indifferent about the time of the pupils," and do not help define their future. Those that remain (1/3) have nothing definite to do but go to an indefinite high school. "Our democracy is beginning to complain that the school system discriminates in behalf of the well-to-do and in favor of the intellectual employments," that we do most for the top of the system that can best care for itself.

All this democratic complaint may be wrong, but it is a fact. There is no escape from the fact that the public schools must be made to take the burden of this crude, social sentiment. No arangement will succeed nor device endure which is not built upon definite plans based on inevitable ideals, from the very first grade of the elementary school. This demands that we recast the plan of the schools. Continuing, Mr. Draper says,—"The schools are profligate of boys and girls; they lack those definite ends which the masses may see are worth gaining." Our critic ends by saying, "Let us have whatever kind of schools the interests of the community demand." Only thus does he think we can restore the "rational equilibrium between the exclusively intellectual and the decidedly industrial interests of the country. Not only industrial, but moral and intellectual health and efficient solidarity seem to these critics to depend upon such revolutionary reconstruction.

Snedden, the more conservative Commissioner of Education for Massachusetts, directs his charges against the upper grammar grades. His comment is in substance this:

"(a) There are too many studies; (b) important studies like foreign language and science find no place; (c) many of the subjects are now treated superficially; (d)

many of the subjects are too difficult for the pupils; and (e) there is no opportunity for the introduction of subjects having some vocational purpose and value.

"There is no way in which we can meet these charges except by providing for a moderate amount of flexibility in the two last grades of the elementary school. This flexibility can be brought about by requiring all pupils in common to take the work in English, history and civics, geography and hygiene, with perhaps a limited amount of attention given to music, manual training, etc. In addition, every pupil should, perhaps, elect one of four groups of supplemental studies: (a) for those probably taking a high school course, fitting for college, a foreign language and the beginning of algebra and geometry; (b) for those probably going early into industry or industrial schools, a course rich in manual training, drawing, applied science and mathematics; (c) for those probably going into commercial callings, commercial arithmetic, commercial geography, book-keeping and other practical studies of this type; (d) for girls looking forward to home work, a course rich in household arts and related sciences.

"This programme assumes some development of departmental teaching, a plan already in successful operation in many places. It provides an opportunity for greatly increased thoroughness. It recognizes that we are attempting to teach too many subjects for any one pupil at the present time. It allows the pupil and his parent to adapt a course somewhat to future needs. It is democratic, because it does not make it obligatory on anyone to choose a course against his will, except in so far as ability might result in his exclusion from certain types of studies, a restriction which, of course, already exists.

"The recognition of the principle of flexibility in these grades is simply a logical result of movements which have been at work in our educational system for generations. The multiplication of knowledge and increasing consideration for difference in children make it an apparent necessity in the elementary school as it has long been a recognized necessity in the college and secondary school."

The compilation of results from a questionnaire sent out by a Committee of the N. E. A. on the Culture Element and Economy of Time in Education to college presidents, professors of Education, School Superintendents, sociologists, and business men, showed real and wide-spread dissatisfaction with the results of education, waste of time and the need for a thorough reinvestigation of conditions. All desire a shorter limit for the process, all find quantity rather than quality too much the aim, most of them say that culture must be redefined, all desire some simplified scheme and pervading ideal which will make for a character which can stand modern tests, all desire to eliminate comparatively valueless material, two-thirds would shorten the elementary period two years and devise a time-saving scheme whereby rapid promotions may be easily possible throughout the elementary system. This is but a bare suggestion of the mixture of constructive and destructive criticism which fills the air. The only difference between the sociological pessimists from Rousseau to Tolstoy to Cattell and his group, and the optimists, is that the latter company still believe in universal education and in the ultimate conservation of the best elements of childhood, and in the conservation and evolution of teaching experience. For us in such predicament who would yet retain our enthusiasm, Chesterton offers this comment as applied idealism: Be assured that you are more efficient if you think you are a God than you are who resignedly, acquiesce in retaining the role of grasshopper. The fashion of being idealistic and full of confidence in our great

work of conserving and developing human traits through educational measures must come into popularity again.

Setting out then to be idealists, despite the inevitably deadening effect of cumbersome administrative machinery and the unwieldy theory of any genuinely educative process, we find certain big ideals slowly becoming articulate for us, upon which our courses will ultimately rest. The simplified principles of hygienic and sanitary enlightenment and preventive medicine, inculcated with strong aspirations to acquire the goal of physical uprightness, will furnish material for a continuous graded course throughout the elementary and high school, which will aim, not at an initiation into the technical sciences, but, with the help of the gymnasium and athletic field as laboratories, at furnishing the reliant basis and impetus for the art of living. Outside pressure is forcing this upon the school. A physical conscience must be and will be simply but persistently developed. Again, the incipient stages of the aesthetic experience, the natural and unrestricted approach to the beautiful, will soon cease to be the detached and exclusive privilege of those only who can defy school standards. Teachers, however, in order to conserve such mental characteristics, must live in the world of the beautiful themselves. This art principle in school work must establish itself pedagogically and universally. Hundreds of ioslated experiments prove the desirability and the practicability of this step also. It will come when higher institutions can inculcate the art spirit in embryo teachers, and when teaching itself is entered upon as a noble art and not as a job,—and when we can see more nearly equalized the conditions for teaching all along the line. With this, and because of this, a simpler, clearer, and less ambitious intellectual attainment, carefully and without haste will be undertaken with more dignified composure. With this curtailing of costly luxuries, it will come about naturally that emphasis upon the bizarre occurrences of the recitation period will weaken, and will be replaced by the much desired emphasis upon protracted, unswerving, and delicately skillful direction in the automatization of those fundamental activities, relatively few in number, which stand one in stead in either cultural or vocational crises. This involves the practice in and the anticipation during the school period of civic and personal virtues, moral training, if not for a time direct moral instruction. Such bases will both shorten and enrich the program of studies, make for professional pride, love and loyalty in teachers, and recognize the *in loco parentis* function of the school, which also seems just now to be its unavoidable duty. For it seems that with other duties elementary school teachers, entrusted with fifty children each (sixty in St. Louis, forty-three in Boston), must mother them during school hours, soothe them through gory attacks of nose-bleed, bandage their cut fingers, sew on little trousers, buttons, tie up hair-ribbons, see that they do not wear rubbers in school, medically inspect their sense organs, watch for contagious diseases, keep a sharp lookout lest some delicate child develop a "temperature," perhaps in time acquire the habit of controling the heating, lighting, and ventilation, and perhaps still further in time

substitute for the keeping of five sets of books and the mechanical compiling of statistics, a simpler and more effective and vital record of temperamental diagnostics. The conservation of the mental and temperamental integrity of 90% of over 23,000,000 children would seem thus to hang in the balance.

The high school teacher must know more intimately and appreciate more critically his or her charges who are going through vital physical, mental, and spiritual changes which make or mar, tone up or discolor, sweeten or embitter their whole after lives. The uncontrollable, inarticulate, but ceaselessly active undercurrent of passion and latent power is there—critical for the educator. Not only sanity, kindliness and justice, but studied insight into the meaning and critical importance of these vital changes must be at command. One cannot any longer retain self-respect nor social, if he accepts his teaching work as merely the imparting of information. He is more and more insistently challenged to make men and women and to study continually the intricate complexities of those processes he, by virtue of his position, must direct and refine.

One must corrall wild colts before one can curry them. The administrative and legislative machinery of education, compulsory attendance, etc., has now accomplished this herding. We should hence turn to the instructional and more scientific field where we may see certain constructive conceptions and ideals which bid fair soon to be incorporated in our educational system. We can here be somewhat brief and must be dogmatic. The old negro's exhaustive categories of those who "wuk," those who "set and think," and those who just "set," no longer holds for educational activities. All are working in some way, more than ever before are trying to think, and fewer than ever are "just setting," on this question of the augmenting of the social equipment for the young. The Royal Prussian Delegation of distinguished critical foreign visitors was only one of many such who have reported us a nation intoxicated with the word magic of education, and moreover with the experimental attitude toward our work highly developed. In the incipient stages and throes of conceiving a workable notion of an integral education pragmatism in philosophy is stripping from us the entanglements of pansophic ideals and absolutistic ends, and with the help of a suggested sociology is substituting or proposing, a basis more in keeping with the rudimentary state and working conditions of our problems.

Psychology no longer bids us run exclusively after any of the panaceas offered to educators during its historic past. Neither Plato's heaven of pure ideas, nor the Plotinus condemnation of sense acquisition nor his asylum for mystics, nor the idealized or romantic sentiments of the age of chivalry, nor Rousseau's savage instinct, nor Pestalozzi's three-cornered sense-basis, nor Herbart's intellectualistic and mechanized pedagogics, nor even the atomistic conceptions of our mental complexes by many modern laboratory psychologists, nor any combination of these, indicate the present helpful relation of psychology to the teaching profession. Child study, genetic psychology in all its branches, telling psychological monographs on reading,

on language acquisition, on the learning process simplified, on the acquisition of skill in various fields from sensori-motor to conceptional activites, on number and many other elementary mathematical processes, on music and the rudimentary stages of the aesthetic consciousness and its acuteness of discrimination, on the characteristic imaginal types and varieties of combinations of these types to be met in the ordinary class room, on the inevitable laws of both habit-formation and habit-breaking, on feasible plans for effective motor practice, on the psychological issues involved in elementary instruction, in grammar as well as composition, on memory, attention, interest, and the emotons of children, on the actual meaning of the vocabulary of lower graders, on formal discipline,—and now most vital and most urgent of all, on the approach to the school room study of Individual Differences, temperamental as well as purely mental and physical,—this but suggests the extensive scientific and interpretive program launched by the forces which in increasing numbers are rallying to the call for a saner and more progressive study of childhood and youth, as they really are. Never again can vicious, superficial or merely traditional bases underlie the course or the method of presentation and training which the future school will consciously undertake.

Psychology has as yet devised no feasible method for determining differences even in mental capacity. None of its tests, such as thresholds of the various senses, mean variations of these thresholds, time and space estimations, crossing out stated letters on pages of print, reaction times, sensory and motor, tachistoscopic experiments on perceptual processes, association rates, the Ebbinghaus combination tests,—none of these directly measures the processes most vital in school work. Just as surely, however, the school's present method of measuring in its marking and promotion system is artificial and stresses superficial acquisitions. The reform will more likely come from within. President Harper, in one of his last addresses, prophesied that an accurate and sympathetic, but scientific study of the student, as well as of the subject matter, would characterize all stages of twentieth century education. Already many experiments have broken ground here within the system of public education, and there is reason to believe that school systems will more and more effectively keep and administer records which will show, besides home environments, physical conditions, and records in studies, etc., the concensus of discriminating teachers' diagnoses of the character, special intellectual characteristics, mental control, special capacities and tastes, special literary, scientific, aesthetic, creative or mechanical penchant, social development and needs, etc. Such recorded diagnoses, with appended judgments as to individual treatments, specific prescriptions as to courses best adapted, as important as it will be difficult, will largely help avoid the pathetic and common experience of finding only uncertain results from school life, and will largely determine careers in life where all is now so indeterminate. This scientific study of the student, this inventory of the school's assets, will dignify teaching and the teaching profession as well. Here again

beginnings have already been made, although psychological categories of the significant traits have not been reduced to any acceptable and workable system. Below are given samples of such beginnings, which demand refining into system:

No. 1. A fine boy; excellent mind; superior in literary interpretation and expression; a leader in all his work; somewhat lacking in energy, however, and needs some prodding in order to have him do all he is capable of doing.

No. 2. Two years in eighth grade, allowed to take ninth grade work, but not promoted on merit. Impulsive, generally easily guided; needs a firm, kind hand; is a boy who really appreciates an extra, outside-of-school word of encouragement. He used to be very troublesome, but in the ninth grade he tried hard to improve.

No. 3. Fair ability, but poor worker; little energy; apt to be out of school for poor reasons; no ambition to excel; quiet and ladylike in deportment.

No. 4. Two years in grade IX; been out of school a great deal on account of ill health; has done fairly well this year; very slow and weak in English, very poor speller—in fact, can't spell; needs much encouragement; is fully worth time and attention given to him; enters high on certificate.

No. 5. Fair ability; good, faithful worker; but little encouragement at home, should get this at school; slow thinker, particularly in mathematics.

No. 6. Best all-round pupil I have sent into high school. She should be able to secure "A" in nearly all subjects. Does her best in everything and will not need watching or driving. Parents not wealthy and she will need to earn her own living. Commercial course would be enjoyed.

Couple with all this the recent doctrine of James that we can safely work intellectually and emotionally on a higher level of mental energy under defined psychological conditions, Beaunis' theory of the important educational function of the inarticulate elements in the deeper thought life, and the more recent studies of even such sticklers for laboratory method as Titchener which are at last attacking the everyday problems of our natural thinking,—and we but begin to anticipate the kind of possible exploitations and fascinating discoveries which may yet be possible for those of us who seek to naturalize and artfully to control the mental and temperamental activities of school children in their incipient stages.

Educational experts in many places are at preesnt trying to perfect methods which will furnish reliable tests of just what measure of waste or of conservation already exists in certain chosen systems of different grade, and which will define with some clearness the reasons for lack of articulation when such lack has definitely determined. In line with all these tendencies various journals have arranged, by providing monograph supplements, to preserve and conserve educational experience in this public and accessible form. College departments of education, and experimental schools, under expert direction will aid still more, not only in protecting the body of chil-

dren from that at present necessary year of being experimented upon by absolutely raw beginning teachers, but will be based upon the deeper conception of the practice school as the professional teachers' laboratory for the exemplification, verification, and discovery of sound educational principles. We are nearer than ever before in the world's educational history to a teaching profession. The 536 educational departments now existing will double both in numbers and efficiency very likely in the next two decades, organized scholarship will be more and more directed immediately at these educative processes, and the teacher function will be dignified by a scholarly conscience and a professional pride as well as by legislative support.

And the final consummation will come when the school and the home can be welded into an organic and co-operative unit, when mothers who can, and fathers as well, will realize that they must meet the teachers half way, when they realize that what the school would aim to accomplish, as Plato and Rousseau have long ago suggested for us, begins at birth, and that the process we have been trying to idealize is, in the majority of cases, distorted beyond straightening, long before the school work can begin; when fathers can sacrifice one-tenth as much commercially as all teachers do, and give one-half as much thought and energy to the better development of their boys and girls; when mothers, who are able to study intelligently educational problems, can utilize one-half the bridge and tea-party time in this kind of thinking and in mothers' club organizations which should, to justify their existence, work out an effective, co-operative policy which would be a moral mainstay to the other less fortunately endowed mothers and to the overworked and undertrained teachers, which latter class alone must, as the situation now is, work chiefly in the dark; and when the school board will get the school out of politics instead of making tenure of position unfairly insecure, and preventing any measures toward adopting good policies which require years to work out to fruition. The slogan for the conservation of children may bring these things to pass. Nothing else ever can.

ENGLISH CONFERENCE

REBUILDING AN ENGLISH COURSE.

MR. E. L. MILLER, DETROIT CENTRAL HIGH SCHOOL.

Ever since I became a teacher of English I have heard teachers of English abused. Before that, I abused them myself. Though all sorts of people join in this chorus of detraction, the voices which are most frequently and vociferously lifted up to condemn us are those of young college professors and old business men. Anybody, they say, can teach English; but nobody succeeds in doing it.

If one is to judge solely by the results secured, these charges are in large measure just. If the problem is considered steadily, however, and considered whole, the wonder grows, not that we do so badly, but that we succeed at all.

"To be a well-favored man," says Shakespeare, "is the gift of fortune; but to read and write comes by nature." Nothing is truer. It is easier to convert a Caliban into an Apollo than it is to make out of a child whose associations are vulgar a writer or a reader. Among autoists there is a belief which amounts to a certainty that it is much easier to build a new car than to repair an old one. Now, there is a rough analogy between the English teacher and the repair man. Each has to make what he can out of a machine weakened and disfigured by all sorts of ill-usage. It is not so with teachers of Latin and physics; they work in a factory, not in a garage.

These are unalterable conditions. But there are some circumstances that hamper high school work in English which can be changed or removed. In Detroit we have been trying for some time to do this; and it is the object of this paper to report progress, so to speak. I say to reprot progress, for, as yet, to say nothing of solving, we have attacked only a part of our problem.

In teaching English, our object is to train the pupil in such a way that he will be master of the art of communicating ideas by means of the mother tongue. This sounds a bit grandiloquent, and it would probably be better to say (as it would surely be clearer) that we are trying to teach him: (A) to read and listen; (B) to speak and write. In other words, we wish him to be able to make other people understand in the largest and best sense what he thinks, feels, and wills, and to be able, with equal sympathy and understanding, to enter into their thoughts, feelings, and desires. Of course this is an unattainable ideal. We shall be abundantly satisfied if, when he is graduated, he can write a good letter and likes to read a good book.

With us the greatest stumbling blocks in our efforts to secure these results have been:

(A) Lack of Equipment.
(B) Lack of Teachers.
(C) Lack of Time.
(D) Lack of Organization.

(A) Every English teacher's class room should be so furnished, decorated, adorned with pictures, and filled with books as to suggest, not a school room, but a scholar's den. It should be pervaded, in other words, by an atmosphere of literary elegance. This we have not attained.

(B) When I say that we lack teachers, I refer to quantity, not to quality. Our teachers are overworked. There are not enough of them. The 2518 pupils in our department were taught last semester by 16.3 teachers. Each teacher, in other words, had 154.5 pupils. Six of them had six sections apiece. The rest had each five. No teacher of English should have more than 100 pupils or more than four sections. Under these conditions only is it possible to give to each pupil that individual attention which is essential to successful work in composition and hardly less essential if one is to awaken in the pupil a loving regard for books.

(C) and (D). We have been able, however, to readjust our courses so as to get more time and to secure a better organization of our work. We have recently added eight one-hour courses in Reading and Speaking, two four-hour courses in English, and two four-hour courses in Literature. We have also separated our courses in interpretation from our courses in constructive English. The result is as follows:

DETROIT CENTRAL HIGH SCHOOL

Outline of Courses in English, February-June, 1910

COURSE (1).

Grammar: Buehler's Modern English Grammar—Introduction and Part I.

Composition: Sykes' Elementary English Composition—Part I, Chapters 1-7; Part VI, Chapter 3.

COURSE (2).

Reading: Coleridge's Ancient Mariner; Dickens's David Copperfield; Homer's Iliad and Odyssey; Irving's Sketch Book; Lowell's Vision of Sir Launfal; Macaulay's Lays of Ancient Rome; Shakespeare's Julius Caesar; Stevenson's Treasure Island.

COURSE (3).

Grammar: Buehler—Part II, Chapters 1-6.

Composition: Sykes—Part I, Chapters 8-10; Part II; Part VI, Chapter 1.

COURSE (4).

Reading: Blackmore's Lorna Doone; Goldsmith's Deserted Village; Scott's Ivanhoe and Lady of the Lake; Shakespeare's Merchant of Venice and As You Like It.

COURSE (5).

Grammar: Buehler—Part II, Chapters 7-11; and Review.

Composition: Sykes—Parts III, IV, and V.

COURSE (6).

Reading: George Eliot's Silas Marner; Lincoln's Speeches; Lowell's Present Crisis; Macaulay's Johnson, Clive, and Hastings; Shakespeare's Henry V.

COURSE (7).

Theme Writing.

COURSE (8).

College-Entrance Study Books: Macbeth; Milton's Minor Poems; Burke's Conciliation; Carlyle's Essay on Burns.

LITERATURE (1).

American Literature. History of American Literature and Reading: Emerson's Essays; Franklin's Autobiography; Hawthorne's House of the Seven Gables; Longfellow's Courtship of Miles Standish; Lowell's Commemoration Ode; Parkman's Oregon Trail; Poe's Poems; Thoreau's Walden; Whittier's Snow-Bound.

LITERATURE (2).

Nineteenth Century English Literature. Text-book: Halleck. Reading: Browning's Poems; Byron's Childe Harold and Prisoner of Chillon; Dickens's Tale of Two Cities; Mrs. Gaskell's Cranford; Huxley's Lay Sermons; Palgrave's Golden Treasury, Book IV; Scott's Quentin Durward; Stevenson's Inland Voyage and Travels with a Donkey; Tennyson's Princess.

LITERATURE (3).

English Literature down to Milton. Text-book: Halleck. Reading: Tennyson's Idylls of the King; Chaucer's Prologue; Spenser's Faerie Queene; Shakespeare's Hamlet and Lear; Bacon's Essays; Palgrave's Golden Treasury, Books I and II.

LITERATURE (4).

English Literature from Milton down to the year 1800. Text-book: Halleck. Reading: Palgrave's Golden Treasury, Books III and IV; Milton's Paradise Lost; Bunyan's Pilgrim's Progress; Addison's Sir Roger de Coverley Papers; Macaulay's Essay on Addison; Pope's Rape of the Lock and Essay on Criticism; Thackeray's English Humorists; Defoe's Robinson Crusoe; Johnson's Rasselas; Goldsmith's Vicar of Wakefield and She Stoops to Conquer; Sheridan's Rivals and School for Scandal; Burns's Poems.

1. All students must take English (1)-(6) inclusive. All students preparing for colleges or normal schools should take in addition (7) and (8).
2. All of these courses are four-period courses. An additional period each week is devoted to reading and speaking.
3. Home-reading is required in all courses.
4. In Courses (1), (3), and (5), six weeks are set aside for grammar, fourteen for composition.
5. The Literature courses are for eleventh and twelfth grade students.

The books set for reading are mostly those in the last college entrance list. Nearly all of them are well adapted for our purposes, but a wider list, or a supplementary list for home-reading, is, I think, in the highest degree desirable. Of the books in English (2), Irving's Sketch Book is the least and David Copperfield the best calculated to stimulate first-year high school students to feel a genuine interest in literature. All of the books in Course (4), except Lorna Doone, have been proved by exhaustive tests to be excellent. In Course (6) we intend to replace Macaulay's Clive and Hastings as soon as possible with Gladstone's edition of Macaulay's speeches. These speeches not only exhibit Macaulay at his best, but are, on the whole, except Lincoln's addresses, if not the best specimens of argumentation in the language, the best adapted to the comprehension of high school students. Dealing as they do with questions which have long confronted Englishmen and are beginning to darken our own horizon, they are vital in subject-matter. Trevelyan truly describes the speeches on Copyright as being as convincing as a proposition of Euclid and as entertaining as an Essay of Elia; and I am inclined to think that the same may be said with propriety of those on the Reform Bill, Chartism, the Ten Hours' Bill, the Gates of Somnauth, Maynooth, and Education.

The course in American Literature appears to me to be not only desirable in itself but necessary if we are to avoid the reproach of graduating pupils who are ignorant of everything respectable that has been written on this side of the Atlantic. We look upon it as an essential tribute to patriotism. It is put first on the theory that our American classics, for the most part, are more on a level with the intelligence of 11th Grade students than are those of foreign lands or remote periods. On the same theory we study 19th Century English literature before we attack Chaucer, Bacon, Spenser, and Milton. I sometimes think that we might even reverse to advantage the order of Literature (3) and Literature (4).

Of the books included in Literature (2), (3), and (4), we get the best results from the Tale of Two Cities, The Princess, the Idylls of the King, Chaucer's Prologue, Hamlet, and the Golden Treasury. The Idylls of the King are put in Course (3) ahead of Chaucer, because in subject-matter they go back to the days when the Romans had just left Britain and the Saxons had just come and because they will excite an interest, if anything will, in Layamon and Sir Thomas Malory. Puck of Pook's Hill might be added

to Course (3) to brighten up several other dark spots between the days of Julius Caesar and the days of King John.

So much for our reading as it stands today. We have added, I think, in two other ways to the efficiency of our course.

Of these the first is the efficiency due to increased size and weight. Formerly a pupil could take in the four years of his high school course only 32 hours of English. He can now take 56. This fact is bound to increase the amount of English studied and the amount learned.

But this is not all. The separation of the work in constructive English from the work in interpretation is of even greater importance. Our old method was to have grammar on Monday, Composition on Tuesday, Reading on Wednesday and Thursday, and Speaking on Friday. This had about the same relation to a real course that a dish of Chop Suey has to a thick sirloin steak. If it was a proper arrangement, it would be equally proper for the Science Department to have Geography on Monday, Botany on Tuesday, Zoölogy on Wednesday, Chemistry on Thursday, and Physics on Friday.

In his Essay on Burns Carlyle says that Burns failed because he lacked unity of purpose; his life was like a wedge with two edges. He could rend nothing but himself. This is a good description of our old course. In trying constantly to do two things at one time we did neither. While reading we were always worrying about "that dreadful composition work"; and, as reading is so much easier than writing, we often did nothing with composition but worry about it. There was never any impetus to our work. The element of unity was absent.

There were also some homely practical difficulties. Students were continually pretending that they thought grammar days were reading days and writing days speaking days. A student who was a glib talker and good reader often got a passing mark, even though he was as ignorant of the uses of the semicolon as is a dachshund of the nebular hypothesis. Even when such a case was properly diagnosed, the bookkeeping incidental to its correction was cumbersome, and it was not fair to the student who had failed in composition to require him to do over a term of reading which he had already done in a perfectly satisfactory manner.

Separation has removed these difficulties. If a student can read he now gets credit for it. If he cannot write, his deficiencies are discovered and corrected with no waste of his time or his teacher's. There is no longer any chance for Tom to bring the wrong book to class. The teachers no longer worry about what they ought to be doing. The work used to go like a pay-enter car; it proceeds now with the speed of an express train. The value of this added impetus is indescribable. The students are beginning to take the work more seriously. It is no longer, as they put it in their quaint and vulgar patois, a snap. Pass slips have acquired a new meaning. "So decided is the improvement," said one of our teachers to me the other day, "that I would not go back to the old arrangement for anything." "My pu-

pils," I was recently told by another, "have learned more the last three weeks than in the previous three years."

Although most of the teachers with whom I have discussed this subject agree that separation is desirable, three or four objections have been offered. Of these I wish brifly to speak:

(A) A whole semester of composition will crush a teacher. We have provided for this by giving teachers, as far as possible, half of their work in composition and half in reading courses. Thus nobody works any harder than before, unless there be some teachers who, under the old regime, slighted the work in composition.

(B) The adolescent mind is so constituted that it cannot concentrate itself for 45 minutes on one thing, *i. e.*, on reading, composition, or grammar. Therefore we should have 15 minutes of each in each recitation. If so, why not, in each mathematics period, have ten minutes of arithmetic, ten of book-keeping, ten of algebra, ten of geometry, and five of trigonometry? Or, better still, why not have in each period a mixture of French, science, cooking, basket-ball, and biology?

Absurd as this objection sounds, it indicates a real danger. Not all of our teachers have been trained in the art of teaching composition. Some of them think that there are in it only two steps: (a) Assigning a subject; (b) Correcting the papers. Such teachers naturally take refuge in the mixture theory. They think that they must have something to fill in the intervals between compositions. These teachers must be educated.

(C) The study of composition should be based on literature. It should and we do it. Only we do it more effectively than we could prior to separation. Instead of asking our pupils to imitate Spenser's Faerie Queene and Browning's Saul, we select for their models bits of writing that they can and do imitate with ease and pleasure. On the other hand, we still have written work in our reading courses. This, however, is not composition; it is merely to deepen and clarify the impressions left by the reading. In other words, we write in our reading courses in order to help our reading; in our writing courses we study literature in order to learn how to write.

(D) One objection remains. It will be said that a whole semester of composition is too much like real work. It will bore the pupils. To this I answer that such an objection is an injustice to our pupils. If there is any one thing that really interests them, it is work. They do not want a diet that is all frosting and whipped cream. It is just the fact that English has been made such a "nice, lovely, inspiring" study that, more than anything else, has made our results so unsatisfactory. But of real interest there need be no lack in a composition class. If it be organized and conducted as a serious study, it is more interesting than a class in literature, just as it is more interesting to play football than to stand on the sidelines. There is abundant testimony on this point from pupils, teachers, and parents.

What we have thus far accomplished leads me to believe that, when our new arrangements begin to have their full effects, we shall come a good

deal closer than we have come hitherto to getting satisfactory results in grammar and composition. The problem of teaching literature is more difficult. It cannot be said to be solved until every graduate has the reading habit. How far we are from this goal I was rudely reminded the other day when a dealer in second-hand books showed me a copy of Palgrave's Golden Treasury which one of our graduates had just sold to him for twelve cents in order to get the price of a ticket to a moving picture show. Nor is this situation peculiar to Michigan. A few days later I met in Chicago a man who teaches literature as if he were inspired and gets $4000.00 a year for doing it. He said to me: "I am in despair. I have just read a set of papers written by a class that has been studying Milton for twelve weeks. One of them ascribes the authorship of Paradise Lost to Alexander Pope and another to John Woolman. Now what can one do about it?" What, indeed, except perhaps, as one of my students recently suggested, to go up to the top of Vesuvius to see the creator smoke, and to take such comfort as may be derived from one of Burns's sagest reflections:

"If honest nature made you fools,
What sairs your grammars?"

FROM THE TEACHER'S POINT OF VIEW, WOULD SIMPLIFIED SPELLING BE AN IMPROVEMENT ON THE PRESENT SPELLING?

MISS MYRA B. TRUE, GRAND RAPIDS CENTRAL HIGH SCHOOL.

Simplified Spelling, like every other new idea, has been forced to run the gantlet of public opinion. Its opponents have dealt it many a blow, but it bids fair to come out of the test not only alive, but also in good working condition. So bravely and wisely has it borne itself that many of its enemies having thrown down their weapons, have gone over into the ranks of its friends and have even lent a helping hand. Even the indifferent have been roused to action either for or against it, so the question comes to us squarely—Would simplified spelling be an improvement on our present spelling?

It is not my purpose in this paper to take up the various objections to simplified spelling, nor is it my purpose to explain at all in detail what changes are recommended by the Simplified Spelling Board. Doubtless each one present has read the circulars issued in which reformed spelling is treated in detail. If not, he can gain the idea of these changes better by reading this material himself than by having it presented here.

In general Simplified Spelling means just simplified spelling. It is not a fixed quality, but an ever changing one to be suited and adapted as need

and use shall demand. At the present time the plan of change might be somewhat roughly grouped under four heads which overlap more or less:

1. Where there are several spellings for the same word, to choose the simplest; for example, to choose *medieval, judgment, draft, program,* instead of *mediaeval, judgement, draught,* and *programme.*

2. To make spelling more regular by choosing one of two possible spellings now used; for example, to spell *center, meter, miter* and other similar words with *er* instead of *re*; to use *or* instead of *our* in *honor, candor, valor, vigor,* and the like.

3. To omit silent letters as rapidly as possible; to spell *quartet, distil, pur, bur, catalog, lam, granit, favorit, destin,* without the final silent letters.

4. As far as possible to make spelling phonetic: *fonetic* for *phonetic*; *fantom* for *phantom*; *thoro* for *thorough.* These four divisions, of course, are merely illustrative and not at all complete; but they do suggest the plan of change proposed.

I shall attempt then to show that were these changes put into practice that there would be a great saving of time and energy. There would be better spelling based on reason and common sense. These changes recommended are rational and certainly tend toward an easier and more natural spelling. The ideal spelling—the sound suggesting immediately the symbol, and the symbol, the sound—is not possible with our present alphabet, but any change which leads toward a spelling more phonetic than our present one is desirable. Every teacher—especially the teacher of the small child has had bad "spells" over the child's spelling, but worse ones over his questions of why *cur* was *c-u-r* and *burr* was *b-u-r-r*; why *g-e-t* was *get*; *l-e-t* was *let*; *m-e-t* was *met*; but *d-e-b-t* was *debt.*

If the child has a good memory and a sure image of the word, all goes fairly well, and he learns to spell—not with much "rime or reason," but by keeping everlastingly at it. But the sad part is that he has done this only with the words of his limited vocabulary and that each new word cannot be learned by analogy of sight or sound. He soon finds that he cannot reason safely that because *l-e-g* spells *leg, e-g* will spell *egg*; that altho *d-r-u-m* spells *drum* and *g-u-m—gum, t-h-u-m* does not spell thumb. What is the result? He loses more or less his sense of phonetics; or, at least, is confused in his mind as to what sound the letter really represents. He loses faith in his ability to spell new words or to pronounce them. Many high school pupils are uncertain of any new word. If they hear it, even though it be pronounced syllable by syllable, they cannot spell it; or, if they see it, the combination of letters does not suggest its pronunciation. Just a few days ago the word *conspiracy* occurred in a text. About half the class spelled it *conspirasy* which seems a natural mistake enough; for, as the word was rather new, they had no guide as to the last syllable. The fact that words are pronounced alike, but spelled differently often is a stumbling block: one pupil wrote, "My sister has *blew* eyes and *read* hair."

As I have already stated, a phonetic spelling under present conditions

is impossible: to quote Thomas R. Lounsbury, "We have a large number of sounds in the language, say forty-two. To indicate them, we have nominally twenty-six letters, but really twenty-three. Even with the combinations which can be made of these, each combination to have an absolutely fixt value of its own, the condition would present one of the most perplexing of problems." The recommendations of the Simplified Spelling Board, however are steps toward a phonetic spelling—an attempt, at least, to do the best we can without a larger alphabet and without a universal agreement as to certain disputed sounds.

These proposed changes coming as they do in so many of our common words, cannot help but be a great saving of energy and time. When the syllable pronounced *it* is always spelled *i-t* and not sometimes *ite*; when *credit, limit, opposite,* and *favorite* have their last syllable spelled as well as pronounced alike; when we spell the last syllable of *cabin, origin, feminine,* and *famine* all without the *e*—in fact, how much more *ease* we shall enjoy when we omit more silent *e's!*

In making our spelling more phonetic, we shall give the speller two aids—the sound will suggest the correct spelling, and the sight of the word will carry its own pronunciation with the exception of accent. What a joy to be sure how all final syllables pronounced *is* were spelled! Think of being sure whether the various syllables pronounced "shun" were spelled *tion, cion, or sion*! Thing of all the time expended in learning our spelling! And after all this fret and fury, what have we? The ability to spell on demand any and all of our words. We certainly have cultivated a memory in this line, but has our memory for anything else improved? In short, is being letter perfect in spelling a sign of great mental activity and ability? Spelling has taught us (possibly) correctness and accuracy—commendable things in themselves—but what else has it done? In geography today we are asking not so much that the child be able to locate cities, as that he shall see why a city is there at all; that he know not mere unrelated facts, but that he be taught to see that many facts can be grouped and related—that that is the way with life. If in a new method of spelling, he can be taught to reason and to find relations in words, shall we object because these words look odd to us? Shall we still cling to certain spellings as though some sanctity were invested in a certain combination of letters? "Oh yes," someone says, "but our forefathers spelled so." "Yes," we answer, "the bright and shining tallow candle, the easy riding ox-cart, the ambitious hoop-skirt—these—yea, all these were of those golden days too; but Heaven preserve us from the joys thereof!"

Not only will spelling be easier and more accurate but pronunciation will be better, too; for most new words will carry their own pronunciation.

Please remember, however, that the stress of this paper is laid on the idea of *improving* the present spelling, but not on doing away with all bad spelling under the present or any other system. Simplified Spelling is not a mental Peruna to cure all the ills that spelling is heir to—far from it.

A careful diagnosis shows that bad spelling arises from many causes which must be removed before the disease can be cured. These causes are many and complicated, and it is not the business of this paper to do more than suggest a few of them.

There is incorrect spelling that arises from pure carelessness. Usually *disappoint* and *disappear* are misspelled only because the writer is careless or possibly ignorant. He has not thought or does not know that he has *dis* + *appoint* and *dis* + *appear*. He misspells *laboratory* for the same reason. Closely related to this and really due fundamentally to carelessness is misspelling due to mispronunciation. The person who says *peperation* for *preparation* is usually consistent enough to spell it *pep* and not *prep*, although once in awhile he spells correctly and pronounces otherwise. A third reason of poor spelling is a more difficult one for it attacks careful and conscientious workers. It is the difficulty of spelling the slighted and unaccented syllables. *Separate* is difficult because it simply has to be remembered. *Grammar* is another word often, I believe, misspelled for a similar reason. Then again, more often than we realize poor spelling is due to defective eyesight. But after eliminating these from the present problem and admitting that simplified spelling may not be able to help them, is it not true that even then by far the larger number and the more difficult problems of our present spelling remain? The great problem of acquiring and teaching the perplexing and confusing distinctions in spelling which have no rational basis? Because simplified spelling can do little for some bad spelling, shall we ignore it entirely? If we cannot have a flying machine, shall we refuse all other methods of transportation? A few of us are even willing to make use of an automobile or (let me speak it low) a common necessary street car. If simplified spelling will put even a small part of one illogical spelling on a simple and reasonable basis, let us be willing to lend a helping hand. Just how and to what extent we can do this will, no doubt, vary with the individual.

I should be glad to see this taught in the schools beginning with the lowest grades. Spelling to be fully helpful must become an automatic process, so the earlier this training begins the better. The eye, the ear, and the hand need training. I am in doubt, but rather inclined to think that it would be unwise to attempt to use this spelling very fully in the high school because there the habit of spelling is fairly well established and confusion might result unless time were taken to teach the general principles and an opportunity were given for practice work. Still I think that attention should be called to it, and the few changes already common should be encouraged.

It has not seemed to me necessary nor advisable, as yet, to use many of the simplied forms in my own writing because force of habit makes the others easier, but I find that already the new forms are beginning to look familiar, so I think that soon I shall not find even the writing of them difficult.

The whole history of the English language, or any other language for that matter, is a record of changes. Language is a living and growing thing in which "Day unto day uttereth speech, and night unto night showeth knowledge." The purpose of simplified spelling is not to take from the English language the glory of its heritage, but rather to add to its power and might for the future. We have tried to show that a simpler spelling will improve the present spelling as it will be a closer approach to a phonetic spelling, thus giving the child the help of both sight and sound. He will be surer of pronunciation as well as spelling. Spelling instead of being merely a memory exercise will also teach him to reason. There will still be poor spelling; but, as there will be a more reasonable basis for spelling analagous words, there will be an improvement. If simplified spelling can accomplish these results, we should encourage it as far as we think wise and helpful, remembering that the trail has already been blazed by some of the greatest scholars of the age.

DRAWING CONFERENCE

ANNIE H. OLMSTEAD, STATE NORMAL COLLEGE.

At the second meeting of the Drawing Conference, held April the first in the New Engineering Building, considerable interest was aroused regarding art education in the schools of the state.

The Chairman, Professor Lorch, led the discussion on "The Teaching of Drawing in the High School."

In this discussion Miss Jackson of the Detroit Eastern High School, outlined very completely a course of drawing suitable for the High School. She emphasized the fact that work in the arts and crafts was well adapted to high school pupils, and that composition and design should underlie all art teaching. Mr. Lorch said that so many crafts schools were being established that the High School might prepare students for this work: he also said that some preparatory work might be given to students of architecture. Mr. Ashe, in speaking of the fact that the University of Virginia was the only college in America showing a regular order, said that we needed to get acquainted with architecture. Mr. Dennison told of the difficulties of teaching mechanical drawing and perspective to High School students whose instructors had not had the proper training.

A discussion then followed regarding the teaching, and the preparation for teaching mechanical drawing in the High School. A committee was

aranged with Mr. Fishleigh of the the University, as chairman, to formulate a course in mechanical drawing and plan an exhibit, to travel through the state.

Miss Guysi of Detroit, was appointed chairman of a committee, to discuss the question of credit for free-hand drawing in the University Engineering Department.

Several other committees were aranged to plan the work for next year.

Miss Goodison of the State Normal College was elected chairman of a committee to obtain an exhibit of free-hand drawing from the grades, high schools and colleges: Miss Olmsted, Mr. Titcomb and Miss Hunt were appointed to arrange an exhibit of design showing the same progression from the grade work through college.

The Section then elected for the coming year Mrs. Batchellor of Olivet, as chairman, and Miss Annie Olmsted of the State Normal College, as secretary.

PHYSICS AND CHEMISTRY CONFERENCES

THEORIES OF SOLUTION.

DR. S. C. LIND, UNIVERSITY OF MICHIGAN.

Solutions play a most important role in all the physical sciences. Their phenomena are among the commonest with which we are acquainted, and are at the same time so striking as to have attracted the attention of investigators from earliest times. But in spite of our familiarity with the process of solution and the commonness of its manifestations, we are still strangely ignorant of the true nature of solutions and of the forces which produce them. Perhaps there is no other class of physical nor chemical phenomena for which so much of experimental data has been amassed and so litle of finally accepted theory produced.

This lack of theory for some aspects of solution can be easily illustrated by reference to solubilities. Why some substances are highly soluble in a given solvent and others hardly at all we are unable to say. We have formed no theory as to why AgCl should be insoluble in water and Ag_2SO_4 soluble, while $BaCl_2$ is soluble and $BaSO_4$ highly insoluble. Again we have formed no theory as to the extreme difference of the effect of temperature upon solubility; why for example, $PbCl_2$ is rendered quite soluble in water by rise of temperature, and $HgCl_2$ remains relatively little affected. We can only note the facts and measure the degrees of solubility. We see therefore at the outset that *solubility* is a property seemingly *specific* for a given

solvent and solute and we have been able to discover few relations between solubility and other properties of substances, although a large number of solvents and solutes have been investigated.

Let us turn our attention to a related but somewhat different phase of the question, namely, in what condition do substances exist in solution? A substance on going into a true state of solution passes out of the range of the eye, the microscope, and the ultra-microscope; it can no longer be distinguished by any physical means from the solution as a whole, and hence our judgment as to the state of the substance after dissolving must be based solely on a study of solutions and the inferences to be drawn from their properties. Even to enumerate all the properties of solutions that have been investigated and the methods that have been employed in their study would be far beyond the limits of this paper, but in order to show the variety of ways in which the problem has been atacked let us mention some of the more important properties of solutions that have been studied: for example, the chemical properties, the density, the vapor pressure, the freezing and boiling points, the surface tension, the various optical properties, the electrical conductivity, the electromotive force, the rate of diffusion, the rate of reaction, the viscosity, the osmotic pressure, the heat capacity, the heat of dilution, etc. In fact the study of any property of a solvent may be properly extended to solutions of substances in that solvent and may furnish some evidence as to the state of the substance in solution.

The theories of solution which have been formed on the basis of these experimental data may be divided into two general classes: the theories of *compound formation,* on the one hand, and the so-called *physical* theories, on the other. According to the theory of compound formation, substances in solution are combined chemically with the solvent. This theory may be subdivided into two, according to one of which, the solute forms compounds only with definite quantities of the solvent, these obeying the law of definite proportions and existing in solution in the excess of uncombined solvent; according to the other chemical theory, a solution is a chemical compound of indefinite proportions, in which *all* the solvent and *all* the solute are combined with each other. This latter is by no means a new theory, indeed it is one of the oldest. Of late years it has had few adherents, which makes all the more notable its advocacy by Prof. Kahlenberg of the University of Wisconsin in his vice-presidential address before the American Chemical Society at its December meeting in Boston (Science). It hardly seems fair however to use the same term *compound* for this indefinite combination as that used for compounds in the stricter sense of the word, because our only criterion for a chemical compound is that it shall have definite and constant composition. To use this same term for mixtures in any proportions, and further, to apply as criterion of chemical combination simply *homogeneity* of the mixture, which we have hitherto used to characterize *solutions,* seems a confusion of terms and reasoning in a circle which can lead to no conclusions whatever.

Discussion of the evistence in solution of definite compounds between solvent and solute will be reserved until after the physical theories of solution have been considered.

In general the physical theories of solution are charcterized by the assumption that no chemical forces act between solvent and solute. Various mechanisms have been proposed, one of the oldest of which is, that the particles of the solute slip in between those of the solvent just as sand between the spaces in a vessel filled with shot. Such a view has been rendered somewhat untenable if not wholly so by the study of the relations of the volumes of original solvent and solute to that of the resulting solution. Solutions usually occupy a volume less than the sum of the original volumes, but in some cases the volume of the solution is even less than that of the solvent alone, showing that the substance in solution must have worked a marked contraction in the solvent, which is not consistent with the mechanical idea of the particles of the solute slipping into the crevices between the particles of the solvent, if indeed such crevices exist at all.

But to proceed to the most important of the physical theories of solution: in 1887 van't'Hoff made the discovery that the laws governing the osmotic pressure of substances in solution, as regards temperature and concentration have a striking resemblance to the gas laws of Boyle and Guy Lussac. His discovery was made by means of the observations of the botanist Pfeffer, made ten years previously on solutions of cane-sugar in water. Our description of osmotic phenomena must be of the briefest, but the osmotic cell before you of the usual type in which cane-sugar solution contained within the cell is separated from the solvent water without, by means of a semi-permeable membrane through which the water can pass but not the cane-sugar, may serve as an example of this process. (Osmotic cell shown.) The osmotic pressure is evidenced by the rise of the liquid column within the cell above that of the water outside; which rise continues until the weight of the column raised just balances the osmotic pressure. The remarkable feature of van't'Hoff's discovery was the fact that the gas laws are not only qualitatively but actually quantitatively applicable to substances in solution; i. e., the osmotic pressure of substances in solution is identical with the gas pressure which the substance would exert were it present as a gas in the same volume and at the same temperature without the presence of any solvent at all. This led naturally to the proposal of a kinetic theory of osmotic pressure exactly similar to the kinetic gas theory. We will not enter here into a discusion of the difficulty of feconciling mechanically an outward bombardment of the particles with the drawing in of solvent through the membrane, since it does not form, as we shall later show, an essential part of the theory. A large class of substances, however, comprising the inorganic acids, bases, and salts do not show in aqueous solution the osmotic pressure to be expected from their concentrations, but always a higher pressure. This ratio of abnormal to normal value is known as the van't'Hoff coefficient i which will be again referred to.

Two other investigators who were studying solutions from different standpoints were obtaining results which in conjunction with van't'Hoff's conclusions were destined to play a remarkable role in the development of the theory of solutions. These two were Arrhenius and Ostwald. Arrhenius approached the field from the side of electrical conductivity. He was studying the relationship between electrical conductivity and the chemical activity of aqueous solutions, and had arrived at the conclusion that in many cases the ability to conduct electricity is proportional to the chemical activity or affinity. He had concluded that substances capable of conducting electricity when in aqueous solution are composed of an *active* and an *inactive* part and the inactive part tends to go over to the active form on further dilution. Struck by the fact that the classes of substances which conduct electricity in aqueous solution are the same ones which van't'Hoff and others found producing abnormal osmotic effects, and further impressed by the fact that the proportions of his *active* and *inactive* electrolyte were the same as could be calculated from the van't'Hoff coefficient *i*, Arrhenius was led to the proposal of one of the most brilliant chemical theories of the last century if not of all times, the *theory of electrolytic dissociation* which has had the most far reaching effects upon the sciences of chemistry and physics, as well as upon the less closely related sciences. The theory met with immediate acceptance by Ostwald who saw its many possibilities and to whom more than to any other is due its present general acceptance by the scientific world.

Briefly, the theory states that substances capable of conducting electricity in solution are dissociated into two particles called ions carying opposite electrical charges. Each of these particles has the same power of producing osmotic pressure as an original undissociated molecule. Hence dissociation means an increase above normal osmotic pressure and the relation between the extent of the dissociation (δ) and the van't'Hoff coefficiend *i* is expressed by the equation: $\delta = i-1/u-1$. The electrolytic dissociation theory rests then mainly upon two sets of facts, first that the percent dissociation found by application of the above equation to any osmotic results either direct or indirect is in good agreement with that found from conductivity measurements through the well known relation $\delta = u/uos$; and second that the properties of dilute solutions of the highly dissociated electrolytes are purely additive and may be predicted if the corresponding properties of the two ions are known. A simple experiment may serve to illustrate this principle. We have here three equimolar, quite concentrated solutions of copper nitrate, copper chloride and copper bromide respectively. They are very different in color, each showing approximately the color of the solid salt, $CuBr_2$ a deep brown, $CuCl_2$ a bright green, and $Cu(NO_3)_2$ a deep blue, which seems quite reasonable when we consider that in concentrated solution the dissociation is only slight. If we take about ten cubic centimeters of each solution and dilute twenty fold we shall have highly dissociated solutions and since the anions are in all three cases

colorless we must obtain the color of the cupriccation common to all three, or as you see the three solutions are brought by dilution to the same bluish green color characteristic of this ion.

The present so-called physical theory of solutions includes the two ideas of osmotic pressure and electrolytic dissociation. According to this theory the osmotic pressure of any substance in any solvent should be dependent only on the temperature, the molar concentration, and the extent of dissociation; and for the large class of substances which do not dissociate at all the last factor is eliminated. Unfortunately it has not yet been possible to test this conclusion by means of direct osmotic measurement in many cases on account of the difficulty of obtaining suitable semi-permeable walls. In fact one may say that the separation of solute from solvent by means of osmosis is a difficult operation, apparently dependent upon highly specific properties of solvent and solute, so much so that some investigators have been led to doubt the generality of the osmotic theory and to incline more to the specific or compound theory of solution. An experiment of Pickering with a mixture of propyl alcohol and water in the osmotic cell showed that when the latter is placed in water, water passes in and no alcohol out, but when placed in propyl alcohol the latter passed in and no water out, so that he was forced to the conclusion that it is not to water or to alcohol alone that his cell was impermeable to the compound formed between the two. Poynting has shown that the compound theory of solution may also lend itself to a quantitative account of the results of osmotic pressure quite as well as the bombardment theory.

Before proceeding further it is important to emphasize the fact that whatever doubt may be cast upon the bombardment theory of osmotic pressure, the electrolytic dissociation theory would in no way be invalidated; resting upon entirely different grounds, it would not be involved in a complete replacement of the osmotic theory.

To return to the compound theory of solution, it can not be denied that there is a specific attraction between solvent and solute, differing widely from case to case. Kahlenberg has pointed out that even some solid substances when brought into contact have a pronounced tendency to liquefy and form a solution while others show no such tendency although readily miscible after liquefaction. The very wide divergence of solubilities also indicates that the forces producing solution are specific rather than general, hence more likely chemical than physical. Another property differing from solution to solution is the degree of condensation or degree of volume decrease on bringing solvent and solute together, already mentioned above. Large condensation has usually been regarded as indicating high chemical affinity and *vice versa,* hence it becomes of particular interest to know that the solution of cane-sugar in water is accompanied by almost no contraction in volume, hence one might expect to find physical forces alone active, and corespondingly sugar does give theoretical osmotic results and furnishes no difficulties as to semi-permeable wall. Following out this line of thought

one should expect to find some ideal solutions obeying the gas laws closely while others might show every degree of variation up to the class where the attraction is so great that no semi-permeable wall could be obtained at all.

The view that definite compounds may be formed in solution between solvent and solute is not at all in opposition to the osmotic theory. Indeed the main grounds we have for believing such compounds to exist have been found by work along the lines suggested by this theory and using the deviations from it as a measure of the compound formation. This method has been employed by Jones in attempting to assign definite values to the degree of hydration of salts in aqueous solution, but is open to the criticism that great uncertainty attaches to the extension of Raoult's Law beyond the dilute solutions. In fact from the evidence from quite a large number of complete cryohydric curves now at hand the assumption seems quite incorrect. Recent experiments also make it probable that the ions themselves are hydrated but the determination of definite hydrates has not yet been possible. On the whole it may be said that as yet little definite progress has been made toward determining the exact composition of compounds in solution.

To sum up briefly the situation in regard to the present status of the theories of solution it must be said that it is a subject presenting immense inherent difficulties on which the last word has by no means been said. Personally I feel that much of the criticism and so-called refutation of the osmotic theory of solution and of the electrolytic dissociation theory has been based on very slight experimental grounds. In the quarter of a century that has elapsed since the proposal of these two theories a vast amount of work has been done which is in the main corroborative; many of the predictions of the two theories have been brilliantly confirmed by experiment, and a whole new science of electrochemistry has been built on these foundations. While on the other hand the objections that have been raised have been scattering, with nothing in the way of systematic theory to offer by way of replacement. Doubtless the present theories will be modified as our knowledge of solutions is added to, but the concensus of opinion at the present time seems to predict that our future theories are more likely to be in the nature of modifications of the osmotic theory than to require its entire replacement.

PHYSICS FROM THE POINT OF VIEW OF A TEACHER OF THE CLASSICS IN A PRIVATE SCHOOL FOR GIRLS.

MISS ROSE ANDERSON, SMEAD SCHOOL, TOLEDO, OHIO.

In a private school it is possible to chose and control conditions to a degree and an extent not always possible in other schools. Since the conditions under which I have taught physics have been chosen and controlled by myself, I may view my teaching of this subject as a real experiment, and I shall make at the beginning of my discussion the same statement that my girls in physics usually make in the beginning of their discussions: "The method pursued is the same as that outlined in the manual." The amount of work, its character and quality, in the class-room and in the laboratory has been usually outlined for college preparatory schools. To follow a little farther the likeness to an experiment, my special statement of the problem will fall under the following: (1) my reasons for undertaking to teach physics, and the conditions under which I have taught, (2) the kind of girls and their attitude toward physics, (3) some of the contributions of physics to other subjects and of other subjects to physics.

The subject matter of all courses of study may be separated into two large groups, one relating to the mental world, and the other relating to the physical world. The first having mind as its province, the other having matter. Neither of these groups is wholly distinct from or entirely independent of the other.

In this world of mind and matter a well rounded education requires a study of both. Language, that marvelous means of expression of the mind, stands deeply rooted and firmly imbedded in matter. There are few words which have not a physical basis in their origin; and thus far, as a means of communication, have not yet freed themselves from the physical basis.

Since we do not leave to chance experience and untrained observation the knowledge which a student is to gain of language, whether it be English or Greek, so we should not leave to chance experience and untrained observation his knowledge of the physical world. How large a place physical science should have in the high school seems, as yet, a question unsettled even by the colleges judging from the lack of uniformity in the amount of science required for college entrance. In the majority of colleges the units required in language far outnumber the units received in science. The Eastern colleges seem to lay more stress upon language than do the Western, and the colleges for women, than do those for men. The majority of the colleges for women in the East do not require science for entrance. In its place a third language may be offered.

For some years the girls of the Smead School who have gone to college have gone East and previous to this year have presented the third language instead of a science. For this reason and for several other reasons there was

a period of years in which science was not taught in the high school department, though elementary science continued to be taught in the lower grades.

Now, however good and valuable language and history and pure mathematics may be in themselves and however great their contribution to the sum total of education, they still leave untouched the large realm of the purely physical and the result of such an education must at best be one-sided. Even should we go so far as to classify Greek and Latin as sciences, yet they would be sciences dealing with the mental realm, and the physical world would remain an unexplored country. It seemed, therefore, not only advisable but necessary that some science should once more have a place in our curriculum. Since we already had six teachers in a high schol enrolling forty-two pupils. I offered to undertake the instruction of physics until a change in our faculty would make it possible to put in a teacher thoroughly trained to teach science. (That change comes next year.)

There were also a few conditions that made the handling of physics easier for me than it would otherwise have been. In the first place, physics was given the right of way; and in the second place, the girls had no preconceived notions of the subject, there were no old traditions, no old standards, no old schedules, only a few pieces of old apparatus. Everything was new from the start.

There were also other conditions. The Smead School does not offer a large number of courses of study, nor a great number of subjects in each course. It tries to handle a few fundamental things well. It has, therefore, been little affected by the wave of elective study that has passed over the country in the last few years. No girl drops a study just because she finds it hard or may not like it. It has also been the custom of the school to arrange in large measure for each girl her course of study.

Such conditions made it possible for me in organizing my first class in physics to pick the members of the class. I chose five girls, three seniors and two juniors, who were girls of marked ability, hard workers, enthusiastic students, and social leaders. With such a class physics became not only a success but a most desirable and attractive subject to all the girls of the school. This year the class was formed as any other class was formed—that is, it was not a picked class. There are eleven in this year's class, five seniors and six juniors, an increase of 120% over last year. This is a more normal class than the one of last year, and I shall discuss the subject from the standpoint of this class, though, beyond doubt, last year's class set the pace and fixed the standard of excellence. At any rate this class is bent upon doing all that last year's class did and doing it just as well—better if they can.

Since no girl failed last year, it seems to be the firm conviction of the class that each girl this year should be able to do as well, and for this reason perhaps, this class is making as good a record as the one of last year—in some respects the work is better. The fact that a girl is a junior or a senior seems to make little difference with the quality of the work.

I find the girls in physics interested and interesting, alert, full of ques-

tions, willing to do anything required, or to spend any amount of time. In fact I often feel that they spend too much time upon their note books, that is upon the mechanical part of the note book. I want them to feel and I think they do feel that the experiment is the important part of the work for them, wherein they may study first hand the principles laid down by the text, and wherein they themselves may choose and control the conditions, and with their own eyes observe the results.

Our laboratory period is on Monday from 1:30 to 4:30. In this time the girls do all work pertaining to the experiment. No note books are taken from the laboratory except the temporary book for preparation. Several weeks ago I handed to each girl as she came into recitation two slips of paper. On one I asked her to write the name of the study she liked best and to give her reasons for her preference; on the other, the name of the study she liked least, with her reasons. I asked that each state the truth so far as she knew it, and not to write what she thought would please me. Since I am teaching these girls Latin also, I think I got the truth in regard to these two subjects. The answers were written in class and the papers collected so as to prevent comparison and discussion. Out of the eleven, three preferred physics, three, Latin; two liked physics and Latin equally, one liked physics and geometry equally, one preferred English, and one, French. Physics, therefore, had six and Latin five.

I am going to read some of these answers, because in their naive way the girls have revealed several things:

"I like Physics the best because since studying it, there have been so many things that I have noticed that come under that study. I have learned why things are, and that makes it interesting. I think every day one comes across something to be noticed. Also in other studies there are words and references to Physics."

"I like Physics because there is variety in the work. It is not the same thing from day to day. The experiments also make the work very interesting. It gives information about matters that one comes in contact with every day."

"I like Physics best because it is so very interesting. The terms used are met so many other times and without Physics I would not know what they mean."

"English and Physics are the studies from which I glean the greatest pleasure. Of the Physics I can truly say it has been a source of great pleasure and value and I realize it from the fact that I spend much of my time and energy on the preparation. I like the idea of solving and analyzing the things that surround us and that seem so ordinary. The mathematical phase is the hardest part, but I have found that the study of Physics has done more for me than any of my other studies so far."

"I enjoy Latin, but not as much as geometry or physics."

"I like Latin and Physics equally well, I like Latin because it greatly helps English, and because I really like to translate and try to make sense

out of difficult sentences. I like Physics because it makes me think of the things that are about me, and also because it teaches me to observe."

"I like Latin best because I enjoy Latin translating and I feel when I get a translation perfect that I have really accomplished something."

"I like Latin best because it helps me in other studies and is interesting as history."

"I like Latin best because it is the most satisfying study I have ever taken, except music."

This same girl says: "I like French least. French has never had very much interest for me, and I think it is because I have not needed really to work to get my lessons." This statement is both startling and illuminating in this day when we hear so much about students hunting for the easy and entertaining courses. It has been my good fortune to find this girl typical rather than otherwise. For most of us, I think, there is zest in a struggle.

One of the serious difficulties encountered in the study of physics is found in acquiring the terminalogy of the science. Since these words are derived largely from either the Latin or the Greek, the student who has had several years' study of the classics finds this difficulty less serious than does the student who knows nothing of Latin and Greek.

On the other hand there is a look of intense satisfaction on the face of the student who has come upon a word in the Latin lesson that was found in the physics, and there are a good many of those coincidences, to the delight of both student and teacher. It is an illumination for both subjects.

The teacher of English says that the girls who are studying physics get much more out of the English than do other girls. The whole subject often becomes rich in interest and meaning to the student of physics, while it means little to one who knows nothing of physics.

The relative value of the sciences as compared with the languages, especially Latin and Greek, must ever be, it seems to me, an individual matter. In this age of high specialization, there comes a time in the life of every student when he or she will chose the one or the other of these lines of study. When that time comes, in proportion as the student finds humanity more interesting than nature, in that proportion will he find language the expression of the human soul, and literature its crystallized thought the more interesting, and will, therefore, feel that study the more valuable. On the other hand, in proportion as the student finds nature more interesting than humanity, or at any rate feels a mastery of the forces of nature to be more valuable to him, in that proportion will he be inclined to the study of the laws and phenomena of the external world. But however large the value of language or of science to the student, neither can be disregarded or excluded from a wisely planned education.

Between the sciences and the languages—even should these be limited at any time to the classics—there can be no real controversy, it seems to me, as to which is the more valuable. Each has not only an intrinsic value

of its own, but each has a value inseparable from the other and so closely interwoven with it that to separate one from the other is to weaken both. The mind reaching out to the external world observes its phenomena, studies its laws and endeavors to turn these to its own advantage and advancement, but especially does it try to communicate this knowledge and experience to other minds. The external world in its turn gives a visible, tangible, concrete basis by means of which language is made possible, and thought is conveyed from mind to mind. The classics and the sciences should not be, and indeed are in no way, antagonistic, but both side by side are the supplements of a complete whole.

THE PREPARATION OF HIGH SCHOOL STUDENTS FOR COMMERCIAL CHEMISTRY.

MR. ARTHUR B. CONNER, DETROIT.

The preceding speaker has presented his ideas on a similar subject from the standpoint of the teacher, the present one from the position of the director of and co-worker with recently graduated students of high schools, wishes to convey his views on the opportunities for such students to engage in commercial chemical work and some of the ways in which their rather limited chemical training may be made of greater advantage to them.

The general trend from the viewpoint of the business man today is to make studies of more use to a man after leaving institutions of learning, and it is from this point of view that I purpose to first say a word as to the desirability of teaching chemistry in the high schools, and the value thereof. I shall also make a few suggestions in regard to the manner in which the subject may best be put before the student to prepare him to carry out the work required in the industrial laboratories connected with large manufacturing concerns.

The present object in teaching many of the practical subjects is to give the student some knowledge about the subject itself, but more particularly some insight into the manipulation and handling of tools, machinery and in a few cases of processes. This is one of the features of a general education and should form a part of the curriculum of all engineering students' high school training.

Let us consider the position of the student when he reaches the point of deciding his electives, as to the value of including chemistry in his course of study:—When the career is already decided upon, which usually is the rarest case and presupposes means to carry out the necessary education, it is essential that the preliminary chemical training be as thorough and practical as possible if the student has decided to educate himself along chemical or engineerings lines. It is no uncommon thing to find mechanical engineers

designing boiler plants for the smokeless combustion of fuel, without sufficient chemical knowledge or understanding. It is quite as common and possibly more so to see refrigeration engineers confronted with the handling of plants, in which are employed such chemical compounds as ammonia and calcium chloride, who know little or nothing about the chemistry of these substances. They are found on the market in various states of purity and often contain large quantities of impurities which interfere with the economical operation of the plants.

In other cases where the future, to a greater or less extent, is already defined, the study of chemistry may be of more benefit than many other studies as the nation's future commercial development depends largely upon its development of chemistry.

When the future is not decided upon the following conditions are most frequently met:—Means to obtain the necessary education, means restricted and education thus frequently limited, and when the schooling stops with graduation from the high school.

In the first instance it is advantageous that the high school chemistry cover as broad and practical a field as possible, when the career contemplated is to be along chemical, metallurgical, or chemical engineering lines, and is often quite necessary in other engineering lines.

In the second instance (restricted means) the teaching of this subject on broad, practical lines may serve to prepare the student in some degree for the taking up of chemical work on leaving the high school or some preparatory school, as will be made more clear later in the discussion.

The same applies to the last case, but with the more urgent need for making his labors productive the high school graduate should have the practical side of all subjects presented as much as possible. Probably the largest proportion of students in our high schools fall in this class.

It will be necessary to show something of the development of the industrial chemist to his present position and the needs of the chemical profession today in order to make clear how the untrained man, except for the very brief instruction which he may get in the public schools, is needed and the place he may fill in the great organizations of the future, wherever it is expedient to employ chemists and their assistants.

A few years ago, and by this I mean within the past two decades, the chemist occupied a position which in most cases meant that he was required to make analyses of raw materials, do control work or analyze the materials in the different stages of the processes to which they were subjected, and further to analyze or test the finished products of various plants. The interpretation of his results and their application to the control, development, or perfection of the processes was usually done by the manager or superintendent who had, except in rare instances, very little chemical knowledge. There has been a gradual change until today the chemist and particularly the chemical engineer is required to aid in the application of his or his assistant's results of analytical work, to the economy and betterment of the processes

used. In many cases the chief chemist's principal function is the development of better and more rapid and more uniform methods of analysis and the more technical application of the results therefrom.

In a recent address by Clifford B. Richardson, editor of the Journal of Industrial and Engineering Chemistry of the American Chemical Society, he refers to "the decline of the art of analysis" and says, "Because it was possible to teach a boy of no special education or preparation one or more methods of analysis, so that he could perform the operation and obtain good results, the chemist came to look upon analysis as a more or less perfunctory and disagreeable duty which he was called upon from time to time to perform." Thus he came to seek what appeared to be the nobler and higher callings of the applications of chemistry to manufacturing and engineering."

This work of making methods of analysis more uniform and fixed has resulted in the opening of a field for men who by practice may become skilled manipulators and who are familiar enough with laboratory practice to follow written or printed schemes of analysis and obtain accurate results without the basic or fundamental knowledge necessary for the trained chemist. This tendency to standard methods gives the operator with a slight knowledge of chemistry the advantage of the *machine* man. It is with regard to the opportunities for such men that I wish to show more than in any other way how the same beginning in a course of chemical education may be of advantage for the young man who chooses to work for a practical education in this field of applied chemistry and at the same time receive compensation equal to and in some cases greater than he could obtain in other lines of business endeavor. This conviction is growing upon us and leads to a similar condition such as we find when the great manufacturing engineers, as superintendents, etc., need men without their technical knowledge but with their experience and ability to direct the work as in the case of Bessemer steel blowers, who often make $10 to $15 a day, or cement kiln foremen, who know the heat control of the furnaces by observation. This may be seen in the employment of such men in these situations as are presented in the following examples:

The chemist has played a more important role in the development of the iron and steel industries than in almost any other single line, and here as mentioned before, the standardization of methods of analysis has enabled the trained chemist to employ in the laboratory personnel skilled workers who are not really chemists in the fullest sense of the word but yet are experts in their particular line as *analytical result producers.* This has enabled the head of such a *control* establishment to employ a greater force for the same expenditure of money and allowed the trained man opportunity to carry on research for the greater, better, and more economical development of the whole industry, thus benefiting the employer, himself and the less thoroughly trained man. It is the practice today to employ young men, particularly high school students for certain parts of the work in our iron and steel laboratories, and many of the chemists in the smaller plants are

graduates, so to speak, of the large laboratories at the big plants. It has been my pleasure to know a half dozen or more young men who have had a high school education and their own initiative to raise themselves to positions of chief chemists in iron works laboratories where they earn from $100 to $150 per month. Compare with this the possible advancement which these men might have made had they elected to become mechanics, expert machinists, electricians, (by this I mean linesmen, wiring foremen, etc.), clerks, accountants or bookkeepers, steam engineers, salesmen or woodworkers. The character of the work has permitted of this self development and more particularly in iron and steel analysis than in any other line.

However, there are possible limitations to such a career, as compared with that of the man whose academic education has been more complete. Taking examples from the same line it appears that the work is very exacting and requires all the man's time and much of his energy and presents very little opportunity for him to broaden out. Again this is more true in this line of iron and steel work than in many others. He often reaches the limit at an early age and remains there for years because of the lack of theoretical chemical knowledge which is seldom acquired to any extent in this practice. Rather, on the other hand, the theoretical man learns to apply his knowledge *practically* through opportunities which are presented in *practice*.

Another example comes from the laboratories of the large and small chemical manufacturers. Young men are employed for much of the work with ofttimes very meager chemical training or none at all and learn to do control and routine work and become experts in the particular determinations or tests which they make. Such young men often receive $75 a month after two or three years' experience.

I wish to give a few other examples and then discuss some of the points in the high school student's training which would make him more practical and of greater earning capacity, from experience with such students in a chemical works laboratory.

It is now quite the practice to employ a chemist in the paper trades and it is an established part of the control work in our large city gas plants, and in each of these cases the work is carried on under the direction of a competent chemist by assistants of the order just mentioned.

Even the government employs such men in its great laboratories connected with the Department of Agriculture, the Bureau of Standards and the Geological Survey, and by the concentration of this work a man is often engaged in the determination of a single element or compound as ammonia in vegetable or animal matter or phosphorus in soils or plant ash.

The large commercial laboratories such as the A. D. Little Co., Incorporated, of Boston, have departments conducted by an expert chemist with several assistants some of whom have only the knowledge gained in the public schools and in practical experience in their particular field of analysis or research to guide them in their output of results which are in almost every single instance more exact and correct than could be turned out by

an educated chemist who had not specialized in these determinations. The drug lines have their men of this same class and the soap and oil industries a similar quota of testers and subordinates. Other lines are glass works, brick and other ceramic industries, cement manufacturers and producers of non-ferrous metal articles of trade.

Thus it will be readily seen that the field for the young man of today in chemical work is not limited to the man with a college education or one who has spent years in many varieties of chemical analytical work until he has become highly self educated. A very marked difference in ability should, however, be recognized between the chief chemist in a small iron or steel works where the methods of analysis have become quite thoroughly standardized, and the chief chemist in a large manufacturing concern where the diversity of raw materials and products is constantly taxing his ingenuity and analytical experience coupled with the ever necessary common sense to find suitable, rapid, and yet accurate methods of analysis and synthesis, and in many cases the application of the theoretical principles to the processes of manufacture or the technology of the process. These latter requirements nearly always lead to and involve the engineering phase of chemical work.

In considering the proposition of making the teaching of chemistry more useful and practical to the student it is necessary first to review the educator's attitude toward this subject and the reasons for its being a part of the courses of study at present.

Chemistry was first taught as one of the natural sciences and therefore was introduced as an academic study, and it is safe to say, I think, that many of our foremost educators today regard it much in the same light as it really stood when it formed a part of the general educational scheme followed by them several years ago. The rapid strides that have been made in the last few years in applied chemistry place it in the forefront of the practical studies and it is the necessity of its recognition as such that prompts me to enter a plea for the "laying aside of Dead Men's Laws" as the Reverend Benjamin F. Mills expressed it in one of his famous lectures on religious subjects given recently in Detroit. The subject is now an elective in our high schools and out of necessity must remain such, but the student's attitude toward it is not the same as it would be if it were placed in the aspect of a practical study along with the studies which now constitute so-called manual training. The student regards all electives in two ways. The first and more common one is that they are necessary to fill in his course and attain the desired graduation certificate, and the other that they allow him opportunity to select subjects of benefit in his preparation for the work he is thinking of following after leaving school. His idea of chemistry is usually that it is a hard subject, but that the instructor will be lenient and that he can get through it if he does the work required and that it is more important to get the work done than to understand it or its relation to the subject. From the practical standpoint this is wrong and its tendencies should be corrected.

The student should primarily be taught to understand the connection between the work which he is doing and its application to the manufacturing problems of the day. The relation between qualitative and quantitative analysis and the application of both to the solution of engineering and economical propositions should be made the guiding post around which the study centers. It may be argued that it is beyond the province of the study of this subject in the high schol to show these relationships, but the speaker believes that this can be done from the outset and that it will serve to arouse the student's interest in the subject itself when its connection with industrial activities is made clear in his mind. Much the same thing is true in the relation between the study of civics or civil government and its application to the political welfare of the country, but this relation is in no sense more real, however much more apparent to the student of high school age. The subject as now taught in the high schools is apt to leave an unpleasant or at least indifferent impression on the student which is not the case with most of the other studies. An insight into its practical application would leave an entirely different impression upon his mind and enable him to look back in after years on that subject, when any of its applications arise in his business career, with that same attitude of inquiry and respect as he would, for instance, in his study of history or geography. Too much stress cannot be laid on the mathematical relationships involved in the study of qualitative analysis, as on these rest the basis of quantitative analysis. The application of simple arithmetic and algebra to chemistry should be plainly shown, and the student be taught to think in terms of quantities of substances as wel as in terms of the substances themselves, as on these points rest his ability to apply his mind to the mastery of detail when employed in the capacity of laboratory assistant. That the chemistry as taught at present is a great aid to the young man in such a position has been evidenced by a number of high school students who have worked in the speaker's laboratory. It has been necessary, however, to teach them to couple their mathematical training with their increased powers of observation and reasoning in almost every case,

One of the great exponents of practical training today is R. T. Crane, of Crane & Co., of Chicago. In his large factories for the production of valves and pipe-fittings he employs a corps of trained chemists and their assistants. He spends a great deal of time in writing and speaking on education and his theme is always on the practical training of our young men. He recognizes the value of special training but believes that theory and practice go hand in hand and that theory can be acquired along with practice. It is not the speaker's position to deprecate the educated scientist, but rather to advance the position of the student of limited means, the large body of our world chemical, who aspire to a better life and better living without the necessary financial means of acquiring it through the medium of colleges and universities.

Before closing it is well to mention a feature of the chemical training

which has no direct bearing upon the teaching of chemistry, but which, however, it would be well for teachers in various lines to bear in mind and from this same practical point of view impress upon the student. This is "the rights of the employer." Some criticism of the attitude of young men who have not reached maturity through experience and who are apt to make light of the mandates of the employer, has reached the ears of the speaker and he thinks that no better opportunity is offered than to begin at an early age to teach respect for employer and observation of his rights in dictating the manner in which his work is to be carried on.

BIOLOGICAL CONFERENCE

THE HUMANISTIC CONTENT OF BIOLOGY.

DR. E. R. DOWNING, NORTHERN STATE NORMAL SCHOOL.

In recent years evolution in Education has been so rapid as to amount almost to a revolution. It has multiplied schools, increased attendance and remodeled courses. It has opened the schools not alone to the favored few but to the ambitious masses. It has established the polytechnic and agricultural schools, introduced manual training and commercial courses, often replaced the classical by the science course and developed the demand for nature study. These significant changes indicate that the schools are trying to serve a new constituency.

A century ago the average child might not go to school beyond his tender years. He was required as a producer. Now mighty steam and deft electricity have supplanted human brawn and supple fingers and freed the little laborer from the slavery of commerce. The industrial revolution, produced by the change of power from muscle to steam, made possible and necessary the revolution in education though the effect was long delayed by expensive war and social inertia. A single engine frees a hundred laborers and multiplies by just so much the productive power of one operator.

This industrial emancipation has made education possible for the masses who come demanding that, with the least possible expenditure of time, money and energy, there shall be provided a course as effective from the educational standpoint as the classical but made up of those studies that have a distinct wage earning value.

The schools have given heed to the demands of the masses for practical subjects. Schools are no longer permeated by the classical atmosphere;

invigorating whiffs of practical affairs blow in freely. University, college and high school teachers are often drawn from technical and professional schools. Even in the grades, history and literature are jostled by elementary agriculture, nature study, sewing, domestic science, gardening, shop work and commercial branches. Schools steeped in traditions of culture find their doors crowded with the children of the common people who must learn in order to earn.

The schools face an herculean task—to replace, in a generation, the old classical course with a course composed mainly of subjects that have a distinct wage earning value and yet that shall have large culture value. We must hybridize the traditions of the school men and the demands of the masses and give birth to a school system that preserves the essentials of both. Where is the educational genius that will accomplish this seemingly impossible task?

I make claim to no such distinction, but I will venture to offer a few humble suggestions looking toward a solution of the problem. Let us look for a moment at the old classical course—not old in the sense of being antiquated. I trust it may live these many years, a wise counsellor and companion of the younger relative, the scientific course. I say let us look at the classical course to discover wherein lay its secret power to sharpen the intellect, temper the judgment, raise the emotions to a white heat of fervour and mould the will.

The classical course has dependent continuity, increasing complexity corresponding to the increasing capacity of the student and a consequent unity: all of which are essential characters in any course that pretends to develop intellectual power. The first lesson in Latin consists of a few rules of grammar, a small vocabulary. The second adds more of each, built upon the foundation of the first. So each lesson, each term's work presupposes a knowledge of all that preceded. One might not think of entering a Virgil class without the preparatory work. But the average high school, and even college course, in science has been and still, too often, is characterized by an entire lack of such dependent continuity. It consists of a term or two of work in physical geography, physics, chemistry, botany, physiology, zoology, geology, and perhaps a few other "ologies" that are taught as independent subjects. A pupil may enter any class wthout question as to his successful completion of preliminary subjects and the studies are taught so as to permit of their successful completion without demanding proficiency in the logical prerequisite. As a result science has been stigmatized as inefficient for educational purposes when the weakness lies in the manner of presentation and not inherently in the subject matter.

Some unifying element must be introduced or the course of study becomes fragmented, resulting in a series of unco-ordinated efforts that lose their cumulative effect. In a course aiming to develop thought power this unifying factor would best be a series of logically related ideas or a dominant concept. It is only by some such unifying idea that science can

hope to achieve uniformity. The objects to be studied are so varied, the world over, that there can be no course prescribed with identical material. A theme, however, may be worked out uniformly and still use dissimilar objects. We must seek, then, some unifying idea in science sufficiently complex to insure an increasing difficulty commensurate with the increasing power of the pupils. Historically, scientific thought has been unified by the concept of evolution; I can find no other idea that promises to so thoroughly unify science teaching.

This unifying concept of evolution is peculiarly the child of biology. Its parents were of biological extraction; it was reared on biological pabulum. Biology is a humanistic study, then, (1) because it fulfills, more nearly than any other science, the fundamental requisites of an intellectually cultural study—it supplies an idea that unifies instruction because of its dependent continuity, an idea that becomes more complex as the student grows in intellectual power.

Biology is a humanistic study because, (2) the idea of organic evolution —most completely embodied in biology—has come to be so fundamental to a comprehension of the other humanistic studies.

Centuries are marked more by the ideas that dominate them than by the deeds they accomplish. The Iliad gives immortality to its heroes. Aristotle is infinitely more forceful now than the great Alexander. The idea of Evolution is the nucleus of the nineteenth century thought. It has absorbed the hitherto unorganized accumulation of facts and constructed them into a vital whole. Its influence has permeated all departments of knowledge, catalytically reconstructing astronomy, biology, geology, history, sociology, psychology, child study, pedagogy and theology. It has enabled us to express old truths in more cogent terminology, to successfully organize the attack upon the unknown, to apprehend more completely and align ourselves more perfectly with "the one increasing purpose which through all the ages runs."

I want here to protest against the prostitution of scientific instruction to purely commercial uses. Notice I say to *purely* commercial uses. I would not for a moment minimize the practical value of biology. It has been the foundation of our splendid advances in medicine, sanitation, agriculture, the conservation of natural resources and of personal powers. But we must not forget that as teachers we are the custodians of a social heritage. The purpose of biology instruction is not primarily commercial. Its aim is not solely to teach the farmer lad how to win a few more bushels of grain from a reluctant soil nor the would-be carpenter how to select his timber more profitably. Nor is the only purpose of biological instruction to fill the memory with a complete set of images of dead and dissected animals each part labeled with its appropriate name. Biology, the science of living things, may be and often is quite as dead as the dead languages. We have struck from the course classical matter that was filled with the personality of the master minds, vibrant with the aspirations and contagious enthusiasm of men who moulded the mightiest of civilizations and what are we giving in

its place! Dry bones, dead muscles, the minutæ of cytological detail, dried up flowers and museum preserves. Fellow teachers, insofar as we are doing that we are failing to put the humanistic content into biology that it has. We need to put into the commonplace objects a spiritual significance, to fill them with the suggestions of the vast import that the world's master minds have seen in them, to insure their recall of the vision of the seer, the inspired interpretation of the artist and poet.

"How wearily the grind of toil goes on
Where love is wanting, how the eye and ear
And heart are starved amidst the plenitude
Of Nature

* * * * * *

Blind to the beauty everywhere revealed,
Treading the Mayflower with regardless feet;
For them the song sparrow and the bobolink
Sang not, nor winds made music in the leaves;
For them in vain October's holocaust
Burned gold and crimson, over all the hills,
The sacramental mystery of the woods."

Our scientific texts and the bulk of our scientific instruction have been negligent of the development of the will and emotions. They have centered effort on the production of intellectual keenness. Science is a statement of bare facts,—a cold, impartial, uncolored recital of truth. This is inadequate for the complete education. It lacks interest. It fails to stir the emotions, to stimulate the will. It does not recognize an important soul power, faith. But add to the scientific knowledge of fact, the artist's joy in beauty, the glamour of poetic interpretation, the raconteur's literary style, the interest of human kinship and utility and it makes subject matter in which the imaginative child soul revels.

Nature study is trying to supply in part at least that element of culture and spiritual uplift in modern scientific education which the older classical courses gave by virtue of the student's contact with the splendid thoughts and sturdy heroes of the classical literature.

Nature study aims at an ennobling, inspiring, healing companionship with nature rather than mere knowledge of nature. The love of nature is the goal, the moral uplift, the ultimate desire. And I believe the college and university professor of biology may well give earnest heed to the nature study movement. It is trying to supply an element of power that the college and university course lacks—that happy, personal, inspiring touch with Nature. I believe that Biology is coming to be a humanistic subject because (3) it leads to a companionship with nature. Humanity owes much to these freindships with nature. They have been the source of inspiration for poets, moralists, reformers, a never failing fountain of perpetual youth

for the world's great toilers. The exquisite Lake region of England, our own charming Concord valley have stamped their character on the literature of a brilliant period because they have moulded the characters of the poets and philosophers, their beauty has inspired. Every religion has drawn on nature for parables and the great religious leaders have spent years apart, meditating amid the suggestive voices of nature. Man's worship of God has evolved from a worship of nature. Religion has been conceived of the solitary places. Freedom has been nurtured by the hills. Literature and art have been cradled in the lap of Mother Nature. That which is true of the race is true of the individual. Sturdy character is the gift of the sun-flecked forests, the rushing river, the eternal hills.

"By the breadth of the blue that shines in silence o'er me,
By the length of the mountain lines that stretch before me,
By the height of the cloud that sails with rest in motion
Over the plains and the vales to the measureless ocean
(Oh, how the sight of the things that are great enlarge the eye!)
Lead me out of the narrow life, to the peace of the hills and the skies."

HIGH SCHOOL REQUIREMENTS IN BIOLOGY.

W. E. PRAEGER, KALAMAZOO

The High School is the most recent addition to our educational system if we except the Graduate Professional School or University proper. It was only in 1821 that the Boston High School for boys was founded, a few years later a similar school for girls entered on a very brief existence. The extraordinary reason for its early demise being that there were more students than could be accommodated. But in outlining the curriculum of this school there was a matter of great interest to us. It was ordered that the course of studies should be similar to that already established in the boys' school with the additions of Christian Evidences and Botany. Thus biology made its entrance, not as a serious study, but, in the language of the times, as an "accomplishment for elegant females." Perhaps because we are feminizing education, or we are imitating kindergarten methods, or we are materialistic and worship only the dollar, or we are atheistic, or we are phlistines, or the age is educationaly degenerate—for we have heard all these reasons given—biology has survived and even forced itself into the company of staid respectability, till the older subjects feel that they are being inconsiderately crowded by impertinent youth. In some places biology is comfortably settled among the rugs in the curricular sleigh, but more often is riding the runners or even trailing behind on its own sled, while classical old ladies shake their curls at such dangerous proceedings and mathematical

old gentlemen glare thru their spectacles and declare no progress can be made while such things are permitted. But a youth is active and versatile and if driven from one runner, is sure to jump on another, at any rate he is not to be put off and above all he is vigorous, enthusiastic and growing.

Now we have High Schools all over our land, and wherever the High School goes biology tags along. What part biology shall play in the life of these High Schools will in the long run depend on what work they are trying to do, and whether biology proves itself worthy to aid in that work.

The High School seems to be trying to do two things—to prepare for life and to prepare for college. To the uninitiated these might seem to be the same thing as the college loudly proclaims that it too is preparing for life, but apparently they are very different. However, as no two people seem quite agreed either as to what life is for or what college is for—other than when expressed in beautiful generalities incapable of exact application—we may find it difficult to reach an agreement as to what the preparation for either should be. But here the college faculty comes to the rescue. Even if they don't know what the college is trying to do they at least know how to do it. Witness the detailed and exact statement of requirements for admission and for graduation in the catalog. Where all else is doubtful they doubt not. Their united voice sounds unequivocal and oracular. Perhaps we who sit on faculties know some things, but we won't tell tales. I once heard a great University president say that the votes of the combined faculty should not be taken as implying complete ignorance of the science of education on the part of the individual members; but such remarks cannot be too severely reprehended and ought to be suppressed.

But alas! so long as we are contented to look at one catalog and only one, the infallibility of the faculty remains a comfortable part of belief. But if we dare to look into past catalogs of the same institution or the catalogs of other institutions our faith may receive a violent jolt. It is always dangerous to look around into either time or space. It was the study of geology and bio-geography that once shook men's faith in the fixity of species and made them evolutionists, and the comparative study of curricula must make us believe that the order of nature in education as elsewhere is evolution and that here too we are moving, to use Spencer's phrase, "from an indefinite, incoherent, homogeneity towards a definite, coherent heterogeneity."

The first American College—Harvard—was founded as a professional school. Its avowed object was the training of ministers. Fortunately the Pilgrims were the radicals of their day and trained their ministers along no narrow lines. The course was as liberal as the times allowed, and the "English and Indian youth" were trained in "Knowledge and Godliness." But the American College was always a semi-professional school. Tho the only professions that were considered were the ministry and law. Even a century ago among the students of Yale 40% were ministerial and 40% legal. Ministers controlled the government of nearly every college. Except in those courses supposed to aid in the legal or ministerial professions the

training was wretchedly superficial. "Harvard," says Agassiz, "was a respectable high school where they taught the dregs of learning." It was only in the last half century that the college freed itself from professionalism. If professional courses (preparatory or otherwise) are now to be given they shall be so recognized. The college now stands for a liberal education. It was the adoption of the elective system that gave us the real college. The semi-professional course which under ministerial control monopolized the name of liberal education was sadly shattered. The thesis took the place of the oration. Men who could do took rank with men who could talk. We are not here to discuss the pros and cons of the elective system. I only wish to draw your attention to the fact that no professional schools or courses preparing for professions ever had many electives. The ideas are incompatible. The elective system and a purely cultural course came in together. Whether one is conditioned on the other remains to be seen.

Of course there was always a broad educational outlook in the American College. Much that was studied there was for purely cultural ends. But the emphasis was settled by those professions that controlled its workings. And when we remember how long traditions last it is perhaps not surprising that the subjects preferred under these conditions should even now usurp the name of cultural courses, humanities or what not. They are the patricians, all others are plebeian, but history has yet to show where the power will ultimately rest. There is still much faith in the ability of the older subjects as cures for most educational ills. Their study is said to have far reaching secondary effects of the most peculiar kind. They are supposed to influence subjects remote from themselves and to produce radical and permanent changes in the mind of the student. All of which has to be largely a matter of faith for those who care to believe it. For the facts are few and most of the evidence is of that kind that science teaches us to look on with suspicion.

Comparisons between values of different subjects are of themselves of very little value and had better be avoided. But here the unfortunate fact of limitation of time comes in. It is impossible that all subjects can be studied by all students. Or, where there is a fixed curriculum, that all subjects can be made a part of it. Hence the inevitable struggle for existence. A struggle that cannot but be regretted for no subject has ever been proposed for the school or college but some actual or possible value lay therein. No doubt they are all good and their comparative values will usually depend on their environment rather than on themselves.

The only way of arriving at a value that we at present know of is by testing, and very few tests have been made, and these not under conditions of proper comparative control. If any one says that Greek has a greater cultural value than German, or Mathematics than Biology, or Physics than Wood-carving, I must ask him how he knows it, and if he says it has not I must put the same question. If I get an answer it will usually be the quoting of some supposed authority, the relating of some personal impression, or

the affirmation of some vague experience of the race, or other arguments that all the progress of mankind has shown to be thoroly unsafe.

The struggle for existence in the curriculum is upon us and may it never cease, for cessation means stagnation. The number of new subjects introduced and the greater number that will clamor for admission promise to continually increase the complexity of that struggle. But no one who looks at the methods by which progress has been made in the past can doubt the ultimate benefit from the present apparent confusion. Let us remember that it is not homogeneity but heterogeneity that we are moving towards, a "definite coherent heterogeneity." Definite and coherent in its relations within itself, to the individual and to the complex, fluid, dynamic, heterogeneous environment.

Now in fitting for this environment we claim that biology has not only a large part, but perhaps a larger part than any other group of subjects. Witness last year's Darwinian celebrations—the worldwide acknowledgment of his contributions not only to every branch of theoretical and applied biology, but to philosophy, history, sociology, education, philology and religion. There are few subjects taught in the High School or College that have not been influenced by the work of this one man, and Darwin's work does not represent the whole range of biological activities. For instance, in human physiology or in bacteriology he did nothing. Surely then biology should be part of the training of every educated man. Indeed, when we remember how many social problems, as education, hygiene, heredity, conservation, food-supply and criminology, are fundamentally biologic and are now public questions, it becomes questionable whether a man without some biologic training is a safe citizen and capable of casting an intelligent vote.

The schools on the whole have done well. Let us remember the newness of the subject, the want of trained teachers, the uncertainty of method, the expense of laboratory equipment, and the unpopularity in many quarters of biological evolution. The schools have shown enterprise and courage in grappling with the new problem. They have at least recognized the subject and given us the liberty to try. The colleges have been much more timid and often unfair. While believing in biology for those few elect who go to college, they have in many instances—especially in the East—worked thru their entrance requirements against the subject as one for the people. This, however, would not apply to the middle West except in a very few instances. It would be well to see just what the colleges allow, for the proportion of students preparing for college is not large, the entrance requirements being concrete and explicit have a disproportionate effect on the whole course.

If we take our own University we find that 15 units are needed for entrance; 7 of these are required—3 in English, 3 in Mathematics, and 1 in Physics—this leaves 8 for all the other subjects. Making half the units required doubles the intensity of the struggle between the other subjects. Indeed it expresses a proportionately greater competition for any science.

For four-sevenths of the required subjects are scientific, and as the proportion of science in the average High School course is not 4 to 7, the elective sciences are sure to suffer most.

The result of this requirement on the part of the University is to practically make 4 years continuous training in the Mathematical-Physical sciences required of all the better schools of Michigan. The other sciences have to shift for themselves. The teacher of physics must be thoroly trained, the laboratory properly equipped, time, money, room and attention must be given to the subject. As chemistry is often made a part of the physics department it receives a reflected glory greatly to its own advantage. Biology and the earth sciences must get along with such time and equipment as can be spared from more favored subjects. Often the teacher of a half year of botany is selected because she has an hour to spare, and the teacher with the least work (and therefore it seems equipped to teach botany) varies in the same school from year to year.

Of all our neighboring Universites not one demands Physics for entrance. In several instances one or two years of science is required, but it is optional between all the High School sciences and thus biology is given a square deal. In every instance Mathematics is required, but the amount is generally less than demanded by Michigan. Northwestern, Indiana and Ohio demand 3 units; Illinois, Iowa, Nebraska and Chicago 2½ units; Missouri, Wisconsin, Minnesota and Cornell 2 units. The difference in the position of Biology where two years of Mathematical-Physical science is required rather than four years is evident.

I do not know why Michigan should have taken this position, unique in the middle West. I have heard Physics advocated, tho rarely, as the one High School science chiefly on two grounds, its disciplinary value and its position in relation to other sciences. As to the first claim it is hard to see on what grounds faculties have a right to dogmatize. We know very little of the disciplinary value of any subject either quantitatively or qualitatively; it is indeed questionable if physchology has advanced far enough to allow theories of formal discipline to be of any value in planning exact college courses. Those who heard the symposium on formal discipline before this club two years ago must have been convinced that the reckless claims so freely being made of peculiar disciplinary value for certain subjects rested on sentiment rather than knowledge. As to one science being more fundamental than another—here again our ignorance is great. It is not in the High School a question of fitting for a purely scientific career. Or can we by arguing as to the relative position of sciences to each other decide their relations in the life of the pupil. The one conception is very abstract, the other very concrete. In practice I have found Chemistry of much more value than Physics in introductory Biology and even in Physiography. A logical sequence of studies can only be considered in its immedate relations. We have not time to precede all language with Sanscrit or all History with Anthropology. If basic subjects should be studied first then biology would

dominate the whole school course. For all the humanities—history, sociology, psychology and even the languages have a biologic basis; while the interpretation of poetry, painting and sculpture rests on a knowledge of nature.

It is contested that biology is as yet an indefinite and unorganized subject. We know that it is young and growing. When we see thruout the land a uniform and exact course in any subject, all local conditions and personal considerations suppressed, we acknowledge maturity and suspect senility.

Should biology be required of all students? I believe that some knowledge of biology is desirable for all men. But it is a question even then whether it should be made a required High School subject. The program is already overcrowded and the enforcing of additional requirements means a smattering of many subjects without concentration or thoroness in any. Far better that half our scholars should have a year of botany or zoology than all have half a year. It is also right that all who desire it should have two years. I do not think that many schools are equipped to give more than two years of biology—teachers, text-books and laboratories are all lacking. But that is no reason why restrictions should be placed on the possible development of the subject. At present, I believe, Wisconsin is the only one of the before-mentioned Universities that allows 2 years of botany and 2 years of zoölogy for entrance. Four years of High School biology does not seem out of place when we consider the history of the other subjects in the curiculum. Think of the antagonism aroused in England less than a century ago when Arnold proposed mathematics as a fit subject for secondary schools, or the sensation it created when in 1873 Harvard took the radical step of allowing English for entrance. Today Mathematics and English are the universally required subjects and often take practically one-half of the preparatory course.

While we hear much discussion as to the rival merits of the required course and the elective system, at the present time the colleges seem to be abandoning both of these for what we may call the optional method. That is to say a series of groups are required for a degree, but the student is allowed an option within each group. As the colleges are so largely adopting this method they ought to allow its use in the preparatory schools. In that case a certain amount of science would be required, but it would be optional with the student what science or sciences he should offer. In this way local conditions and individual characteristics would not be ignored while each science would be allowed a full and free chance of development.

What we may at the present time ask of the schools is perhaps best summed up by Professor Ganong in his recent Presidential address before the Botanical Society of America—an address which every teacher of biology must read,—our demands should be a "four years course in the High School in standard sciences, upon exactly the same basis of efficient teaching and educational dignity as any other subjects whatever, being required so far as they are required, and elective so far as they are elective."

Towards this we may all work, keeping in mind the variety of conditions that the High School has to meet and the ceaseless changes that alone mean life and efficiency in education. And from the Colleges we demand, as a right, liberty to do our best.

THE TRAINING AND FUNCTION OF THE HIGH SCHOOL TEACHER IN BOTANY.

PROFESSOR FREDERICK C. NEWCOMBE, UNIVERSITY OF MICHIGAN.

During the past thirty years, the teaching of botany in the secondary school may be said to have shown four tendencies:

(1) Prior to the year 1885, the teaching was guided largely by the books of Asa Gray, and generally became little more than the study of text-books followed by the identification of plants. There was little or no laboratory or field work, or observations on behavior.

(2) From 1885 to 1890, the colleges introduced the study of the biological aspect of living things; and the leading high schools, following suite, by 1890 had discarded wholly the identifications of forms, they bought microscopes, and studied cell-structure and microscopic organisms.

A few years of this course were enough to convince both high school and college that the task undertaken was too difficult for the pupils attempting it. The teachers complained of the technique, and the college professors condemned the teachers for carrying the college course into the high school. The college men, however, were unable to offer much aid for reform.

(3) From 1895 onward, the schools have shown a tendency to relinquish more and more of the microscopic work, to give more time to the higher plants, and to introduce more gross anatomy and physiology. But in this departure the schools have been feeling their way. It is true that there have been texts published, and formal courses have been adopted by educational organizations; but both of these guides have been hesitating in their recommendations, and have left the teacher wide latitude in his choice of method, material and subject.

(4) Ten years ago, the schools attempted a diversion to the pursuit of ecology. Here at least was something said to be definite. The younger teachers and professors were enthusiastic, the more experienced remained dubiously silent.

At last we can say that ten years have shown that ecology as a science is not for the high school any more than the identification of forms as a science is for the high school.

Out of the haze and groping and uncertainty of the past fifteen years, there begins to open what, I believe, is a clearer way to the goal. If I

should try to name this way which will lead to successful high school teaching, I should name it *the way of natural history.*

With this term there is defined for me, more clearly than I have seen for many years, the measure and the content of the high school courses in botany and zoology. The term, *natural history,* defines, not so much the matter, as it does the point of view in the study. It makes the pupils acquainted with plants and animals, learning their names, studying their structure, observing their behavior. It uses the microscope to show a few microscopic organisms, to show cell-structure, etc.; it uses gross anatomy to inculcate various lessons; it uses laboratory observation and experiment to demonstrate what can be better done in laboratory than outdoors; it studies organisms as much as possible in street and garden and park, in field and farm, in wood and river and lake. The pupil keeps his notebook strictly as in scientific study, he learns precise description and delineation, he is trained above all in the scientific habit of thought; but he is taught to see also the beauties of nature and art, to appreciate and respect the modifying influence of the hand of man. He may not learn the intricate process of mitosis, nor the classification of the tissues, nor many details of the evidences for organic evolution. But he will become acquainted with the larger groups of plants and animals, will be able to call many forms by name, will know how they live and move and have their being, and will be led to rejoice in the discovery that every living thing, like himself, is working for itself, and, at the same time, is a citizen of the world, adding to, or taking from, the well-being of its fellows.

Having set forth briefly in the preceding words what, as it seems to me, should be the nature of the high school course in botany, I may now add the remark, that the teacher should be ready not only to teach botany as indicated, but should be prepared to fill a place in the community in which he lives. It might perhaps be better said that if the teacher is trained to instruct from the point of view of natural history, he will be able the better to fill a place in the community in which he lives.

The training of the teacher should be related to the two-fold function of the teacher as instructor in school and as member of the community supporting the school. This two-fold function may be expressed in a single sentence: The teacher should be the interpreter of nature. This interpretation of nature cannot be done without knowledge. This knowledge is two-fold: It must have information for its building stones, and it must have perception of the relation of parts,—the ability from these building stones to construct the edifice which I have called the interpretation of nature. Teaching for information touches but the lower strata of education; teaching for the perception of the relation of parts, that is, for right thinking, is the crowning function of education.

The teacher who is the interpreter of nature must know, not only the internal structure of representatives of the great groups of plants, he should know also their life-history, their physiology, and their relation to the world

in which they live. These words indicate what the college training of teachers of botany should be: They should have courses in the morphology of plants from the lowest to the highest—algae, fungi, liverworts, mosses, ferns and seed-plants; they should have a course in the physiological processes of plants, in bacteriology and parasitic fungi, and a year's field study of plants in their natural habitat. They should have a year's training in a seminar, or journal club, in which they may become familiar with the names and work of those advancing the science of botany, and with the sources of literature. Finally, in the hands of the experienced teacher, they should have a semester for the organization of all their knowledge into an efficient system for secondary school teaching. In this final course, they should be drilled in the collecting and preservation of material, in the literature for the identification of all groups of forms, in the fitting up of a laboratory, in the ordering and care of apparatus, in the planning and conduct of courses, and especially in the knowledge of the aim of high school teaching, and in the scientific relation of the teacher to his community.

All these training courses in college should be presented and pursued with the aim of comprehending nature in its various aspects, and with the aim of gaining an appreciation of the work of man in adapting the resources and activities of nature to his needs. This implies that the teacher in his community will show some interest and knowledge of forestry and agriculture, as well as becoming the expert in the identification of plants, the repository of information on the conservation of natural resources, and the supporter of nature study clubs and movements.

It is not supposed that the training in college will put the teacher in possession of all the knowledge necessary to do all these things. But the courses in college should be so conducted as to start the prospective teacher in this direction, and show him how to walk by himself farther on this road. In the nature of the case, the student can, in college, make only a beginning in the field study of plants; but if he has a love, as he should have, for all the plants and animals peopling the land and the water, he will, year by year, add to his knowledge, and increase his ability to interpret nature. He will also keep himself in touch with the progress of his science by reading regularly some journal reviewing botanical literature; and he will keep himself in touch with his profession by participating in teachers' conventions.

COMMERCIAL CONFERENCE

COMMERCIAL GEOGRAPHY.

MR. W. W. WIER, DETROIT.

I. Location and boundary.
II. Area and population.
III. Physical features.
    1. Mountains
    2. Valleys
    3. Plains
    4. Soils
IV. Climate.
    1. Kind
    2. Relation to Man
    3. Relation to production
    4. Relation to progress
V. Commercial facilities.
    1. Division of labor
    2. Money and banking
    3. Postal systems
    4. Telegraphs
    5. Telephones
    6. Consuls
    7. Weights and measures
    8. Government
    9. Relation of government to trade and industry
    10. Taxes and revenue
    11. Methods of transportation or highways of trade
        a. Natural
            1. Oceans
            2. Rivers
            3. Packing, etc.
            4. Conduits
        b. Artificial
            1. Highways or wagon roads
            2. Canals
            3. Railroads
    12. Internal improvements
    13. Relation of people to progress
    14. Express companies

VI. Forces.
    1. Natural
        a. Wind
        b. Water
        c. Air
        d. Sunlight
    2. Artificial
        a. Steam
        b. Electricity
VII. Resources.
    1. Natural (Raw material)
        a. Grains,etc.
        b. Minerals
        c. Wild plants
        d. Animals
            1. Wild
            2. Tame
    2. Artificial
        a. Manufactured products
            1. Home
            2. Corporations
VIII. Special occupations and industries, located and described.
IX. Products of export.
    1. Natural
    2. Artificial
X. Products of import.
    1. Natural
    2. Artificial
XI. Commercial centers.
    1. Seaports
    2. Rivers and lake ports
    3. Inland cities
XII. Commercial importance.
XIII. Markets.
    1. Home or local
    2. Foreign
XV. Balance of trade.

ON TO COLLEGE OR INTO BUSINESS.

PROFESSOR N. A. HARVEY, STATE NORMAL COLLEGE.

I wish to argue today, the affirmative of two propositions: First, that the special preparation for the vocation that a person expects to pursue shall be entered upon not later than high school graduation. Second, that while in the high school, those persons who wish to do so, shall have an opportunity to select subjects with reference to the vocation that they expect to pursue.

In order to discuss these propositions intelligently, it becomes necessary to consider the influences that determine the choice of vocation, and the manner in which it is made. It also involves an examination of the age at which a young person is competent to choose an occupation wisely.

It is often urged that a young person is not able to decide wisely what business to engage in until he has had such experience of life as is likely to be obtained by the broader outlook furnished by a college education. Hence it is argued that the decision of a life occupation ought to be deferred until the end of a college course, after which the young man or young woman is not only ready to enter upon his vocational preparation with the highest degree of success, but he has gained a knowledge of his own talents and powers, as well as attained a degree of culture that he would not otherwise get. Let him first be a man, the occupation comes subsequently.

The prevalence of this opinion and the persistency with which it is urged makes it necessary to examine the ground upon which it is based. In the first place, very few young men or young women complete a high school course without having some idea of the occupation in which they should like to engage. If there are many such, it argues an indecision, and weakness of character that is anything but promising for subsequent success in any occupation. Then, too, the decision is likely to be determined by any one of half a dozen factors. In very few instances is there such a pronounced bias for one particular occupation that renders success in any other improbable. Nearly all of our American boys and girls have such versatility as to make it possible to pursue any one of half a dozen occupations with almost equal degrees of success. Then, too, an occupation is seldom chosen, deliberately by an accurate judgment from a consideration of all data, but is determined by the line of least resistance. It may be the advice of parent or friend, or a convenient opportunity to engage in the business that determines what the vocation shall be. These factors are likely to be as potent at the end of a college career as at the end of a high school course.

It is extremely probable that as many careers have been chosen unwisely from the influence experienced in college, as have arisen in consequence of a lack of college experience. The saying that many a good farmer has been spoiled to make a poor preacher contains a good deal of general truth. Col-

lege influences are not likely to lead to wiser decisions in choosing an occupation than would be made without it.

There are two kinds of education, general and special. General education is defined as that kind which develops the powers of the mind in general. It is intended to cultivate especially those powers of the mind that are weak rather than those that are strong. The studies pursued in school, where general education is the aim, should be those that cultivate the powers not likely to be employed in the business in which the person will ultimately engage. The aim of general education is to give mental power, and a broader outlook on life than will be obtained from vocational pursuits. It is supposed to develop manhood, not a specialist. Hence it is the subjects pursued for general education are those that are as far removed as possible from vocational pursuits. The farther removed they are, the better for the purposes of general education. This course of procedure brings about the opposition between school and life, and is responsible for much of the obloquy heaped upon the college graduate who can do one thing as well as another, but can do nothing well.

The psychological theories upon which this view of education is based have been altogether discarded and there would be no necessity for referring to it if it were not for the influence it still has in maintaining the fiction of general culture, or abstract power. Mental discipline as an aim in education has been altogether discarded and the correlative doctrine of general culture must be interpreted in another way.

Culture generally means the kind of knowledge that cultured persons possess. By cultured persons we generally mean those who have a college education. Primarily, the standard of general culture is that of the leisure class. By leisure class, I do not mean those persons who manifest no activity, but those whose activities are not necessarily directed toward earning money on which they live.

One mark of membership in the leisure class is conspicuous expenditure of money, and another is conspicuous leisure, or non-economic expenditure of time. In America, conspicuous expenditure of money is the prevailing indication of belonging to the leisure class, while in Europe, conspicuous leisure is the favorite. There is nothing much worse than to hear the opinion of an American millionaire upon the idle nobility of Europe, unless it is to hear the idle nobility of Europe express a corresponding opinion of the ostentatious vulgarity of the new rich of America. The more admiration the American public comes to have for European institutions, the more important becomes conspicuous waste of time as a mark of the leisure class. This is the real strength of the idea of culture as the aim of education, and the origin of the hold that the non-economic subjects have in the school curriculum.

I have never yet attended a meeting of this Schoolmasters' Club in which some one did not expatiate upon the excellencies of the great German Universities, and we have always been permitted to make the assumption

that German university training and German industrial supremacy are in some way or other directly related. But an examination of the facts will show that it is the German technical schools and not the German universities that are making Germany industrially great. German Universities are essentially leisure class institutions and American professors, trained in German Universities are not likely to be impressed with the dignity of industrially efficient education. Only last Wednesday, the veracious newspapers reported that the President of Yale University had discovered that in order to be a typical American, a man must be born in Berlin. Whether this is a true report or not, it will be readily credited by those who have witnessed the serious attack of Germanophilitis, suffered by American Universities.

The other idea is that of industrial efficiency. To become industrially efficient demands as great power of mind as it does to obtain a leisure class education. Industrially efficient education results in the power to get things done. It demands the development of what men call executive ability. It is as truly cultural as is the study of Latin or Greek, and is as truly soul inspiring.

There is a great deal of hysterical exaggeration about college education. The person who has graduated from a great university is held to be educated, no matter how inefficient he may be, nor how long it is since he was graduated. So far as knowledge is concerned, it is demonstrable that all the knowledge that is useful to us at any one time depends not only upon what we have once learned, but upon what we have forgotten. It is not too much to say that all the knowledge that is available for our use at any time is that which we have learned or relearned with the past five years. Knowledge is not something in the nature of a permanent possession. That person is best educated who has persisted in continuous learning for the longest time.

All work is for the worker. There is no other joy comparable to the exercise of creative ability. Nothing expands the soul and frees it from its limitations like working in harmony with creative power in producing new things or new combinations. Scholastic training cannot compare with it. True culture is obtained only in and through one's work. It is by one's work in one's daily occupation that the truest, highest and best culture is obtained. It is a short-sighted view that asserts that culture is obtained only in school, by a process of learning things that can have no immediate utility. That is leisure class distinction, not culture.

Professional preparation for any occupation is necessary. There is no business that does not have its own field of technical knowledge distinguishing it from other vocations. In the process of learning this professional knowledge and obtaining the technical training, the school can be of great assistance. It avoids a waste of energy, and permits the learning to go on without serious loss by blundering. But it must not be assumed that everything about the business is to be learned before the practice of the vocation is undertaken. Professional preparation is really only a preparation for entering upon the real vocational study. It prepares the person to study with

profit, eliminating the waste by blundering. It must not impress the individual with the fact that there is no more for him to learn. Such an impression would be a serious injury.

Even in the high schools differentiation is possible. It is evident that as our high schools are now organized, they fail to meet the felt needs of a large number of persons who support them and who pay the taxes. Of every seven persons who enter the high schools only two are to be found in the senior year. Five out of the seven drop out in the first three years.

It is a fact that in Michigan rather more than in other states, the high schools are influenced by the University to make their courses fitting schools for university entrance. Only university or college graduates are expected to teach in them, and these direct their students to the university as a natural consequence.

The courses must be such as the university authorities demand, and in these courses, leisure class subjects are conspicuous. A person may attend the high schools without studying the leisure class subjects, but such a student is discredited by being refused graduation. Hence it is that many students drop out of high schools, feeling that the high school course does not offer the things that would benefit them most, and which they would gladly continue in school to learn. Each high school graduate is prepared for a university career, and that is as far as his preparation extends.

The result is being felt in the high school. Those students who fail to find in the high school course the things that they feel, however mistakenly, that they need, inevitably create a demand for technical training which must result in the development of technical schools side by side with the high schools, depriving the high schools of the opportunity that is now offered to them, of continuing to be the people's colleges.

The only method of procedure that lies open to the high schools is to broaden their courses until they meet more adequately the needs of the people who attend. The course must no longer be largely the leisure class subjects, demanded by the university, but must include the industrially efficient subjects that students feel they need. If the student thinks he needs book-keeping and typewriting, opportunity should be offered to him. If he thinks that manual training and construction work best meets the needs of his prospective vocation, the high schools can afford better than any other school to give it to him. If the student wishes to understand the problems of agriculture and domestic science, no other institution than the high school can better arrange for him the most profitable courses. So too, if the student wishes to pursue the leisure class subjects, Latin, Greek, history, and the curious aggregation of knowledge taught under the name of English, an opportunity should equally be afforded to him, but the high school course must not be limited to such a line of study.

Our high schools are unique in their origin and their constitution. They are not the descendants of the old preparatory academies, nor were they established with the preparatory idea in view. They grew out of the common,

public schools, and were founded upon the idea of industrial efficiency. They have been called the people's colleges and the name is a good one. They were designed to give the kind of education that the people felt they needed, and they looked no higher. But since the death of the old academies and preparatory branches, they have been seized upon by universities as preparatory schools.

The opportunity to make the high schols fit the needs of all the people is present with us and ought to be improved. Such an opportunity will never recur. If it is not, a group of technical high schools will spring up, that will parallel the work of the preparatory high schools. It is suicidal to permit a part of the people to be educated in one kind of schools and the other part in another kind. Al of the people ought to be educated in the same kind of school thereby rendering the people homogeneous in thought, ideals, aspirations, and love of a common country. This may be accomplished by teaching in the high schools the vocational subjects that the people who attend them think they need. The high schools ought not to limit their teaching to one kind of education, nor to one course of study, but the courses of study ought to be sufficiently diverse to meet the different needs of different classes of students.

Many courses in one school, rather than one course in many different schools will be the most economical and most efficient method of educating the people of the United States. I should be very glad if the high schools can do the work of the preparation for university entrance, but if that demands the abandonment of the idea of industrial efficiency upon which the public schools are founded, it will be letting go the greater for the less to continue to meet university demands.

ON TO COLLEGE OR INTO BUSINESS, WHICH?

MR WOODBRIDGE N. FERRIS, BIG RAPIDS

I am only too glad to express my hearty approval of every line of the paper that has just been read. Consequently my discussion will not lie along the line of differences. I am not at all sure that anything that I will say will add clearness and forcefulness to what Mr. Harvey has said.

I want if possible to throw out a hint or two for the commercial educators. We have about 18,000,000 of school children in this country of ours. Seven out of eight of these or all lacking 1,500,000 will never pass into the sixth grade. I do not say high school, as seven-eighths will never get into the high school. If we were talking over the magnitude of the situation we would have very little to say. It takes 400 school children to produce one graduate. We have to deal largely with the 15,750,000 who never so much as enter the

sixth grade. Now I consider this an appalling condition. I do not mean by that we have got to drop the object. I simply use this fact for two or three things which I will have to say.

I am an old man, consequently what I am about to say is explained by that fact. When I was on the farm in Southern New York, we mowed the grass with a hand scythe, we spread the hay with an ordinary pitchfork, we raked the hay with an ordinary hand-rake, we loaded it on a cart hauled by a yoke of oxen, and we unloaded it in the primitive way in the barn. We cut every spere of oats and bound it by hand, and it was threshed sometimes on the barn floor with a flail. A little later than this, they managed to employ a simple threshing machine and a two-horse tread furnished the power. As we became more prosperous, we had ten-horse power. Then followed the side hill plow. Sister knit socks for father and mother, and there was no sewing machine in the home until after I left at the age of twenty-one.

The conditions of the modern home, at the present time, are very different. At that time every member of the family had something to do and not from choice. I did not want to work, but I was perfectly willing to support the family, and the conditions were such that I was obliged to work and every member of the family had to work. The American home has been revolutionized since that time. Probably not a girl in this audience has ever knit a pair of socks. Very few make their own clothing, and fewer make a pair of pantaloons. There is now no work of that kind in the American home. They do not have to make candles, nor bother with kerosene lamps, the home is free from coercive work. In sending them into the college without the habit of work, without the knowledge of work, a large number of our boys and girls do not know what to do when they are out of school. Every possible means is taken in your cities to take the nickels out of your home. In a university town every kind of device is in operation to relieve the university students of ther money. Assuming that the university student has time to waste and burn, they assume the same for the high school.

I am going to talk of the habit of work and to obedience in that work. Conditions have changed, and the schools will have to do it. The home has still more work to do. Not all the hoodlumism in the University of Michigan is due to the home, and not all to the public schools. It is due to the laxness and laziness in the home. The home has not the means of making them do work, hence the laziness in the home makes bubbles out here and at every other college and university in the land. I do believe that if some of the professors had some of that experience they would cut out that hoodlumism from fifty to seventy-five percent. I would rule out a certain element that ought to be made to earn their food instead of making bums. Some girls ought not to be put in the high school. Half the boys and girls in this country ought not to go to high school. They are not only being prepared for absolutely worthless lives, but worse than that they are hindering a helf-dozen from doing their work. They ought to be outside doing manual work. Colleges and universities ought to be so organized that they could weed out

that element. I am not fighting the university, but want to make the university and the collegese more efficient. Consequently this training is loaded upon the school. I am most emphatically in favor of having vocational work in the high school. Whether the people wil demand it I do not know. They should absolutely get out from under the direction of Michigan University or any university. I do not believe that other subjects ought to receive units of credit. I believe in it most firmly and some of the universities are recognizing that fact. Work in bookkeeping ought to be recognized, and the boy having this work should be admitted to some of its courses.

I am not scoring the high school. It is impossible to get results with the home as it is. You have got to change the home as it is or else the school.

I have a boy in the University of Illinois. He is studying to be a farmer. I did not want him to be a farmer. However, I believe in limits, and a human being has certainly personal rights. We are all liable to make some mistakes. I found it almost impossible to get him through my preparatory school by studying subjects which he did not like or I could not get him to like. When I let him go down to the University of Illinois he found something to his liking. The boy has read more books since last September than ever before. He has selected from my library books that he would not take down before. I am not going to talk against your Latin or Greek, I only want you to give these boys a square deal. Give them what they can use. What a pity it is that in a high school we really find young men and women who cannot find their proper vocation. I wish this matter of occupation or vocation might in some way come before the high school. There is much more necessity of having a man in every college who has a knowledge of this world, and that he shall be able to give them wise advice. It must be frankly admitted that in commercial lines we have fought shy of a good many things that belong to cultural education. I do not want to see a commercial school so conducted that he will never hear of Tolstoi, Shakespeare, Holmes, Longfellow, and other great poets and writers. The boys and girls in stenography and typewriting are entitled to it. If I thought my students were to be stenographers all their lives I would close my school. If I thought they were to be bookkeepers, I would close my school. I believe that many of the boys and girls will find in college a training which will multiply their training ten fold.

And lastly I must emphatically say with my brother that the whole matter of life with the 15,750,000 children, and for the great common people must be whatever joy there is in life, and whatever pleasure there is must grow out of their labor. I want you to understand that business and the cultural idea are not adverse.

HOW MAY THE GENERALLY CONCEDED LACK OF PREPARATION IN ENGLISH BE REMEDIED BY OUR PUBLIC SCHOOLS AND BUSINESS COLLEGES?

MR. O. G. FREDERICK, DETROIT.

I have interpreted this subject in a great deal simpler way than the gentlemen who has just preceded me.

As we find conditions now in reference to the schools, I have brought here a few suggestions that we have adopted at home to improve the faulty English and the faulty spelling. We, in Detroit, have found some very pleasant things in connection with our investigations in language work. Some five or six years ago when this difficulty of spelling was considered seriously, I asked in twenty-five or thirty different eighth grade classes this question. I said language has come about in one of two possible ways. First, a wise man may have written a grammar and since then men and women have tried to talk and write in accordance therewith, or second, men had a few ideas and then fitted words to these ideas and, as their ideas grew, words were added and language came to be as we now know it. In which way do you consider language reached its present condition? In every instance they said, "I think the wise man wrote the book and men and women have tried to write and talk in accordance therewith." I wondered why I received that answer and it occurred to me that we teachers had been teaching them so—not directly but by implication. In every school I had ever visited prior to five or six years ago, the work was taught from the formal side; compositions were written and corrected with the formal side of the work in mind.

Language is merely the translation of experience into expression. The thing the teacher needs to do in language work is to appeal to experiences which the children have had. We are beginning away down in the first grade to let the children tell in a sentence what they know about "My mother is making a new dress," for example, and they are getting the idea of what a sentence means. When they are through with the thought they put the period there. The one thing that I would like to say this afternoon is that after the matter of "motive" for expression is taken care of, little of difficulty remains. I brought along an entire set of compositions that I picked up Monday afternoon of this week the motives for which are all gotten out of one cheap magazine. The advertisements were cut out, and each child answered his own. There was a sufficient motive there. The child writes his letter to secure the thing that he wants, and there is no imagination required. It is an actual condition that confronts him. I asked the teacher how many of the children were foreign born. She answered, that all of

them were. I told her to be conservative and it appeared that more than seventy-five per cent of these were foreign children. I asked how many of these children have come across the Atlantic Ocean. Out of a class of forty-three, sixteen stood up. This is the kind of English we get from the fifth grade:

Exhibit A. (A letter was then read signed by Josephine Unger). The poorest ones are always on the bottom and I will read the last one. Exhibit B. (A letter was then read signed by Annie Millner). The motive is there and the incentive for writing is there. The child has something to say and says it. Have you ever thought how vivid the language is before the child goes to school,—the kinds of words of those earlier years. One boy talks about "axing down trees" and another one was "uncobbing corn." Recently I stood talking with a postmaster and a little girl put down a ten-cent piece and asked for a "hurry-up" stamp. I insist upon it that they use effective English until they come to school, and we train it out of them by overemphasizing the formal side of the work.

Here I have another set of compositions. Just pictures taken from a magazine at random, in groups of five or six. The beauty of this is that you do not get a set of uniform compositions. The drudgery of correction of examination papers is very largely because of the lack of interest in it. Just think of it, a set of compositions without interest. On the other side of the case, the children are actually enjoying their English period. Five or six years ago when composition was mentioned there was a scowl that ran over the room, now there is a problem to be solved. Another motive is to give some sentence in order to start them off. For example, "One day uncle gave me a silver dollar and said you may do as you like with it." This is the problem. Exhibit C. (A letter was read from one of the pupils). This composition which I read was from a school in the so-called silk-stocking district. The reaction we get depends upon the district. There is always a typical reaction in every district. All of you are familiar with that bit from Scott and Denny. A little girl walking along a platform and selling apples..... The little girl cried bitterly. The solution of that problem is an intensely interesting one. In one district the children uniformly said that the man telegraphed back that he had forgotten to pay the girl and he told the station agent to pay the money. In a foreign district the pupils thought the man had deliberately gone away without paying and so treated the act as a crime and would have him arrested or fined. The difference in ideals comes from the difference in social experience. In every instance there is a social experience that is worth while and the child is not working out the social ideals of the teacher but his own ideals. This week I saw this thing happen in a fifth grade. The teacher said, "I have a clock. Can you see my clock?" She got them to appreciate the fact that they were getting the image of a clock but each saw his own clock not the teacher's. Then she added the words, a *little nickel alarm* clock. Can you see my clock now? Everybody was de-

lighted. What was the purpose of these words? I think that is the way to get at grammar. The purpose of these words was to make a definite picture.

The teacher said, "I saw a horse going down the street. Can you see my horse?" "I see a black horse going down the street." They saw the picture. This method certainly leads us into good English. In "Sentimental Tommy," Barrie makes Pim say to Tommy: "When you have learned to say what you yourself think instead of what someone else has thought for you, you are on your way to becoming a remarkable person." Our boys and girls are beginning to have a measure of that ability.

Another motive for expression is found in the incomplete story, and this we have found very effective.

You know the story of Marjory Daw, suppose we read that appreciatively up to the point where it becomes necessary for Philip to write the letter. Then let each member of the class write the letter. Read and discuss these letters with the class and then compare with the letter as Aldrich wrote it. Still an other motive for writing or talking is found in the expression of opinion on topics of current interest. Just now there is considerable discussion whether robins should be protected or destroyed. Every child in the fourth grade will have an opinion—one will say "I think they should be protected because they sing." Another, "I think they should be desroyed because they ate all the cherries on my father's cherry tree." Another question, and this with a distinct ethical back ground is: "What rights do you think peddlars have in the streets?" You know that boys are prone to ignore the rights of street peddlars sometimes, but after a boy has said, "I think they have just as good a right to make a living in that way as my father has in his," he will hesitate to throw a brick or a snowball.

The most important thing we need in our schools so far as English is concerned is not to impose ready made materials on the pupils but to find proper methods of drawing out the best that is in them.

Exhibit A.

289 Gratiot Ave., Detroit,
March 1, 1910.

L. L. May & Co.,
St. Paul, Minn.

Dear sirs,—

Enclosed please find Twenty-five Cents for which send to above address the bulb "Monarch of the East" and also your book of "Northern Grown Seeds, Bulbs, Plants and Fruits," as per advertisement in Woman's Home Companion.

Yours truly,

Josephine Unger.

Exhibit B.

352 Montcalm,
Detroit, March 1, 1910.

Knox & Co.,
100 Knox Ave.,
Johnston, N. Y.

Dear Sir:

Enclosed please find Fifteen Cents, 15/100, for which send to the above address a two quart package of Gelatine as per advertisement in "Woman's Home Companion."

Respectfully yours,

Anna Millner.

Exhibit C.

Dorothy Knaggs.

One day Uncle gave me a silver dollar and said, "You may do as you like with it." I thanked him and ran upstairs to my room to think about what I should buy. After a half-hour had passed and I was still without an answer the lunch-bell rang and I went down stairs. To my surprise there was no one at the table except my brother. He told me that Mother and Uncle had gone down town for lunch and would not be home until late in the afternoon.

Now there was no one to consult but my brother and the maid, so I decided to say nothing about the money but go down town and look around. What a terrible thing it is to have money that you don't know what to do with! I took a car and suddenly remembered that I was alone and that I would have to pay my car-fare. Mother was usually with me and I had not taken the car-fare into consideration. The first window I saw was filled with little purses on chains for seventy-cents. They were pretty but couldn't be good silver so I passed on.

On the corner was an old woman who was selling pencils. She looked so old and crippled that I bought five. Thirty cents gone! As I crossed the street I heard a noise and I looked only to see my bright half-dollar roll into the gutter and go down the sewer. I must save five cents so that I had only fifteen cents to spend. In a baker's window were some tempting looking tarts and I bought a dozen. I had nothing left but car-fare and when I got home I found that the lead in the pencils was so hard that it just scratched and the tarts were stale and I had nothing to show for my dollar!

WHAT MAY BE DEMANDED OF OUR PUBLIC SCHOOLS AND BUSINESS COLLEGES IN THE TEACHING OF BOOK-KEEPING AND ACCOUNTING.

MR. HOWARD C. BECK, DETROIT.

The remarks which follow are not to be understood as in any way criticising in particular any of our schools, either public or private. All of the writer's schooling was obtained outside of Michigan, and my personal knowledge of teaching in my own state is comparatively limited and acquired mostly from hearsay.

Consequently, I do not feel competent to criticize these schools and what follows is to be considered as what the school *should* teach to fit the student with a proper knowledge of bookkeeping. It may be that some are already teaching the subject in the manner outlined, although I greatly doubt it.

To properly equip a young men for a bookkeeper or an acountant, he should, in the first place, be thoroughly grounded in mathematics, and, by mathematics, I do not mean algebra, geometry and other higher branches, but the simple principles of arithmetic, percentage, interest, partial payments, various forms of commercial paper and negotiable instruments, and all the various short cuts in multiplication and division. When we read a word we do not stop to spell it and to tell what it is, but recognize it instantly and call it by its proper name. Yet how many in adding a column of figures, in which, for instance, the figures 2, 7, 9, 2 follow each other in sequence would call it 20 and add it as one amount instead of each figure separately.

Yet why should not figures in groups be recognized as quickly as letters in groups? It can be just as easily done with a proper training and is of immense value as a time-saver when once acquired.

Again, the student must be made to thoroughly understand what the purpose of keeping books is, and that is, that an accurate record may be made of every transaction of the business, every item of value properly accounted for, and a determination had as to the success or failure of the business from the standpoint of profit.

Elements of either profit or loss are not necessarily dependent upon the bank deposits or check register, and when a bookkeeper commences to recognize this fact, in other words, to think for himself, he immediately begins to increase his value to his employer. This ability to think can be materially developed in the schoolroom on practical problems found in every day business without resorting to lengthy and involved demonstrations in algebraic radicals or geometrictl theorems.

I cannot take the time, or is it necessary, to go into a description of various methods of bookkeeping, styles of books or titles of accounts. In scarcely two lines of business are they exactly alike. The acounts of a Brewery are necessarily radically different from those of an Insurance Com-

pany, and those of a Municipality have hardly anything in common with that of a lumber business, and yet there are certain underlying principles that are common to all of them.

Another element of value in a successful bookkeeper is his ability to determine the shortest way to keep a certain record so as to ensure accuracy. Many bookkeepers make a dozen or even fifty entries where one would suffice. Here is where the skill of the accountant comes into play, when he can show to an overworked bookkeeper how his work can be lightened and better results accomplished simply through a change in method.

The matter of the determination of the unit cost of manufacture of a certain article has become very important in these days of keen competition, and probably calls for the exercise of the highest skill in accountancy; and which cost accounting could probably not be taught in the schoolroom in an advanced form. Instruction in the general principles involved therein would be helpful to the student, and possibly develop in some a line of thought which would in time work into valuable ideas.

Of necessity the instructor in the foregoing principles must have had practical experience to be a successful teacher. Mere textbook knowledge will not do.

Drafts are not protested in text book problems, nor do customers return goods because not as represented, or for some other reason, and yet both are of frequent occurrence.

Problems which are "keyed," or for the answer to which you look in the book, are not of much value and do little for the student and less for the teacher.

The demand for *thinking* men was never greater than it is today. Bookkeepers who *think* command far more money than mere machine men who have no other ambition than to travel along in the same old way and do as little as possible.

Summing up, it seems to me the main points are these:

First, the teacher must have had practical experience to be capable of teaching bookkeeping successfully.

Second, the student must be more than a machine or book pupil, but must develop from practical problems and observation a reasoning power peculiarly required in this study.

Third, for the student who follows out the method of study under the instructor properly qualified, a position will be found waiting even before he completes his education.

SYNOPSIS OF BUSINESS MEETING

UNIVERSITY HALL, April 1, 1910.

The meeting was called to order by President E. C. Lancaster. The minutes were read and approved. Reports were made by the Secretary-Treasurer and the Auditing Committee.

FINANCIAL REPORT OF THE SECRETARY-TREASURER FOR YEAR 1909-10.

1909.	*Receipts.*	
March 23	Balance on hand in Savings Department, F. & M. bank	$ 20.00
	Balance on hand in Commercial Department, F. & M. bank	79.84
March 27	Deposited dues and ads	52.75
April 6	Deposited receipts of meeting	454.50
April 10	Sale of proceedings	50.00
May 7	Dues	14.00
May 26	Dues	13.00
June 19	Dues and ads	15.50
July 21	Dues	3.00
Sept. 25	Dues	4.00
Oct. 16	Dues	10.00
Nov. 13	Dues	4.00
Dec. 13	Dues	2.00
1910.		
March 12	Dues and ads	18.00
March 18	Dues and ads	17.00
March 24	Dues $27.00; Sale of proceedings $70.00	97.00
March 29	Dues and ads	34.00
	Total receipts	$888.59

1909.	*Disbursements.*	
April 2	Check No. 124, Carl Sanzie, at door	$ 1.90
April 3	Check No. 125, D. L. White, janitor	2.00
April 3	Check No. 126, S. W. Millard, badges, printing	17.50
April 7	Check No. 127, Prof. G. A. Miller, speaker	17.68
April 7	Check No. 128, Ella and Rosina Schenk, office	8.25
April 8	Check No. 129, C. T. Porter, at door	.75
April 8	Check No. 130, E. M. Wisdom, at door	2.70
April 8	Check No. 131, John Thomas, at door	2.55
April 8	Check No. 132, James Howell, at door	1.05
April 8	Check No. 133, B. G. Grim, at door	2.10

April	8—Check No. 134, Prof. J. F. Hosic, speaker	15.00
April	12—Check No. 135, L. P. Jocelyn, salary	100.00
April	12—Check No. 136, Sara J. Phelps, office	2.48
April	12—Check No. 137, Prof. C. B. Davenport, speaker	46.58
April	17—Check No. 138, Florence Bancroft, office	3.23
April	17—Check No. 139, Prof. Geo. D. Strayer, speaker	52.80
May	1—Check No. 140, Prof. Laura J. Wylie, speaker	39.74
May	1—Check No. 141, Prof. L. W. Sprague, speaker	45.00
May	1—Check No. 142, H. G. Prettyman, postage	3.00
May	1—Check No. 143, H. G. Prettyman, postage	3.00
May	27—Check No. 144, C. A. Sauer & Co., cupboards	14.00
June	9—Check No. 145, Prof. W. H. Hobbs, postage	3.40
June	12—Check No. 146, H. G. Prettyman, postage	5.00
Aug.	23—Check No. 147, E. E. Calkins, postage	2.00
Sept.	24—Check No. 148, E. E. Calkins, postage	2.00
Dec.	1—Check No. 149, Sheehan & Co., postal scale	1.25
Dec.	11—Check No. 150, Clerk hire, one and one-half years	33.80
Dec.	17—Check No. 151, John Thomas, delivery	.75
1910.		
Feb.	5—Check No. 152, H. G. Prettyman, postage for proceedings	20.00
Feb.	5—Check No. 153, Am. Express Co., proceedings	10.00
Feb.	10—Check No. 154, John Thomas, delivery of proceedings	4.00
March	16—Check No. 155, E. E. Calkins, postage on programs	15.00
March	17—Check No. 156, E. E. Calkins, postage on programs	5.00
March	21—Check No. 157, E. E. Calkins, postage on programs	5.00
March	21—Check No. 158, Ann Arbor Press, printing	250.00
	Total expenditures	$738.84

Summary.

Total receipts	$888.59
Total disbursements	738.84
Balance March 29, 1910	$149.75
In Savings Department of F. & M. bank	$ 20.00
In Commercial Department of F. & M. bank	129.75—$149.75

(Signed) L. P. JOCELYN,
Secretary-Treasurer.

REPORT OF THE AUDITING COMMITTEE.

Ann Arbor, March 31, 1910.

We have examined the accounts of the Secretary-Treasurer and find the same to be correct.

JOHN W. BRADSHAW,
O. V. ADAMS,
Auditing Committee for 1910.

NOMINATING COMMITTEE.

W. F. Lewis, representing the club at large—Port Huron.
J. B. Davis, representing the club at large—Grand Rapids.
L. P. Jocelyn, representing the club at large—Ann Arbor.
Clara J. Allison, representing the Classical Conference—Hastings.
E. L. Miller, representing the English Conference—Detroit.
Tobias Diekhoff, representing the Modern Language Conference—University.
R. R. N. Gould, representing the History Conference—Kalamazoo.
W. P. Holt, representing the Physics and Chemistry Conference—Toledo.
J. P. Everett, representing the Mathematical Conference—Normal College.
W. E. Praeger, representing the Biological Conference—Kalamazoo College.
W. N. Ferris, representing the Commercial Conference—Big Rapids.
F. W. Frostic, representing the Physiography Conference—Ypsilanti.
Emil Lorch, representing the Drawing Conference—University.

AUDITING COMMITTEE.

John W. Bradshaw—University.
O. V. Adams—Ann Arbor.

REPORT OF THE NOMINATING COMMITTEE.

President—Dean J. O. Reed, University.
Vice-President—Harriet A. Bishop, Detroit Central.
Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

Chairman Classical Conference—G. A. Williams, Kalamazoo College.
Secretary Classical Conference—J. G. Winter, University.

Chairman English Conference—F. N. Scott, University.
Secretary English Conference—Lila Fyan, English Department, Port Huron.

Chairman Modern Language Conference—A. G. Canfield, University.
Secretary Modern Language Conference—Elizabeth Zimmerman, Western Normal School.

Chairman History Conference—C. S. Larzelere, Central Normal School.
Secretary History Conference—Eric Gates, Bay City.

Chairman Physics and Chemistry Conference—W. D. Henderson, University.
Secretary Physics and Chemistry Conference—E. N. Worth, Kalamazoo.
Vice-Chairman Physics and Chemistry Conference—C. W. Peet, State Normal College.

Chairman Mathematical Conference—E. A. Lyman, State Normal College.
Secretary Mathematical Conference—E. E. Gallup, Adrian.

Chairman Biology Conference—C. E. Barr, Albion College.
Secretary Biology Conference—Frances Stearns, Grand Rapids Central.

Chairman Commercial Conference—W. W. Warner, Saginaw.
Secretary Commercial Conference—Mr. Rauck, Detroit.

Chairman Physiography Conference—F. W. Frostic, Ypsilanti.
Secretary Physiography Conference—E. M. Brigham, Battle Creek.

Chairman Drawing Conference—Mrs. Anne S. Batchellor, Olivet College.
Secretary Drawing Conference—Miss Annie H. Olmstead, Normal College.

REPORT OF COMMITTEE ON RULES FOR THE MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION.

The secretary of the committee on rules for the Michigan Interscholastic Athletic Association made a verbal report of the work of the committee during the year and recommended the discussion of some of the rules adopted at the last annual meeting.

The first discussion was upon Rule I (e) Professionalism. Upon motion it was voted to strike out the two words "or against" in the phrase "or against professional teams" in the third line of the rule.

Upon motion the committee of three, composed of the President and the Secretary of the Michigan Schoolmasters' Club and the chairman of the high school section of the State Teachers' Association, were given full power to act in all cases of professionalism, and were asked to draw up some policy concerning the same and report at the next annual meeting.

Upon further motion it was voted that all students ineligible under rule I (e) be suspended from all athletics for a minimum period of one year and that this action should take effect immediately.

A motion to change the wording of rule I (f) was lost.

MEMBERS OF THE MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION.

The Secretary reported the following schools as members of the Michigan Interscholastic Athletic Association with annual dues paid to date: Detroit Western, Ann Arbor, Saginaw, Grand Rapids Central, Adrian, Marshall, Port Huron, Battle Creek, Kalamazoo, Jackson, Benton Harbor, Detroit Eastern, Bay City, Fremont, Kalkaska, Holland, Detroit Central.

The report of the Athletic committee consisting of W. A. Morse, L. P. Jocelyn, C. G. Wade, and J. J. Schmidt was accepted and the committee was discharged.

Since the last meeting of the club the High Schools of the state have formed an organization to be known as the Michigan High School Athletic Association which is to be independent of both the Michigan Schoolmasters' Club and of the State Teachers' Association. They also require that a student must be passing 14 hours of current work, and must have 14 hours credit for the next preceding semester. Certification of teams must be made every week.

PROGRAM OF GENERAL SESSIONS

(Admission to *all* meetings of the Club by badge.)

Thursday Morning, March 31

9:00 o'clock.

UNIVERSITY HALL.

SYMPOSIUM: The Classics and the New Education.*

1. Letters.
2. The Classics in European Education,
   Professor Edward K. Rand, Harvard University.
3. The Classics and the Elective System,
   Professor R. M. Wenley, University of Michigan.
4. The Case of the Classics,
   Professor Paul Shorey, University of Chicago.

* The papers of the Symposium will be published in the School Review.

Thursday Afternoon

5:00 o'clock.

UNIVERSITY HALL.

Organ Recital,
Mr. Earle V. Moore, University School of Music.

Thursday Evening

8 o'clock.

UNIVERSITY HALL.

Public Address: History of the Great Lakes,*
Mr. Frank Leverett, of the State Geological Survey.
At the close of the address a reception will be held on the main floor of University Hall to which all of the teachers of the State, and guests, are invited.

*Illustrated with the stereopticon.

Friday Morning, April 1

8:30 o'clock.

UNIVERSITY HALL.

(Admission to *all* meetings of the Club by badge.)

BUSINESS MEETING OF GENERAL SESSION.

(a) Regular Business.

(b) The New Rules for Interscholastic Athletics.

(c) The State Athletic Association.

9:30 o'clock.

LITERARY MEETING OF GENERAL SESSION.

General Topic: Conservation of the Child.

1. Eugenics: The Child as affected by Ancestry and early Conditions,
   Dr. Henry Goddard, Vineland, N. J.
2. The Duty of the State in Education of the Child,
   Dr. C. O. Probst, Columbus, Ohio.
3. Mental Conservation of the Child,
   Professor Charles H. Johnston, University of Michigan.

Friday Afternoon

4:15 o'clock.

BARBOUR GYMNASIUM.

1. Young Ladies' Classes in Gymnastic Drills.
2. Basket Ball Game.

(Admission by badge.)

Friday Evening

8:00 o'clock.

LECTURE ROOM, NEW CHEMICAL LABORATORY.

Public Address: A Scientific Revolution,
Professor William A. Noyes, University of Illinois, Editor of the Journal of the American Chemical Society. By invitation of Phi Lambda Upsilon.

Friday Evening

8:00 o'clock.

NEW WHITNEY THEATER.

The Presentation of "Dr. Klaus," under the Auspices of the Deutscher Verein of the University of Michigan.
Dr. A. O. Lee, Director.
(Members of the Club will be admitted at reduced prices.)

Saturday Evening, April 2

6:00 o'clock.

BARBOUR GYMNASIUM.

University of Michigan Women's Annual Dinner.

1. Reception of alumnæ and former students of the University of Michigan.
2. Banquet.

8:00 o'clock.

SARAH CASWELL ANGELL HALL.

3. The University Junior Play.
(Admission to Play by Dinner Ticket only.)

PROGRAM OF CONFERENCES

CLASSICAL CONFERENCE

Chairman: Professor F. W. Kelsey, University.
Secretary: Professor C. L. Meader, University.

Wednesday Afternoon, March 30
1:45 o'clock.

SARAH CASWELL ANGELL HALL.

Presiding Officer: Professor George A. Williams, Kalamazoo College.

1. The Dattari Collection of Alexandrian Coins, recently presented to the University of Michigan,*
   Francis W. Kelsey, University of Michigan.
2. The Influence of Virgil upon the Poets of the Italian Renaissance,
   Miss Ida C. Snell, Charlotte High School.
3. Professor J. J. Eschenburg's Lecture Notes on Classical Literature and Archaeology,
   Professor Warren Washburn Florer, University of Michigan.
4. Three Factors in Vitalizing the Study of the Classics,
   Miss Clara Janet Allison, Hastings High School.
5. Discussion of Miss Allison's Paper,
   Miss Amy S. Lane, East Side High School, Saginaw.
6. Some Aspects of Ethiopic Magic,*
   Dr. William H. Worrell, University of Michigan.

Wednesday Evening, March 30
8:00 o'clock.

SARAH CASWELL ANGELL HALL.

Presiding Officer: Professor Walter Dennison, University of Michigan.

7. Lecture before the Classical Conference and the Philological Association of the University of Michigan: A Journey in Roman Africa,*
   Professor Benjamin L. D'Ooge, Michigan State Normal College.

Thursday Afternoon, March 31
1:45 o'clock.

SARAH CASWELL ANGELL HALL.

Presiding Officer: Professor B. L. D'Ooge, Michigan State Normal College.

8. A French Translation of the Aeneid and what it has to teach us of the Art of Translation,
   Principal J. Remsen Bishop, Eastern High School, Detroit.

*Illustrated with the stereopticon.

9. Hellenic Patronymics,
   Professor Samuel Grant Oliphant, Olivet College.
10. Essentials and Non-Essentials in the teaching of Latin,
   Dr. F. O. Bates, Central High School, Detroit.
11. The Appeal of Greek Literature,
   Dr. John G. Winter, University of Michigan.
12. Literary Illustrations of the Classics: Some Practical Considerations,
   Professor Campbell Bonner, University of Michigan.
13. A Byzantine Treasure recently discovered in Egypt and now in the Collection of Mr. Charles L. Freer,*
   Professor Walter Dennison, University of Michigan.

Friday Afternoon, April 1

1:45 o'clock.

SARAH CASWELL ANGELL HALL.

Presiding Officer: Professor Paul Shorey, University of Chicago.

14. A Few Days in the Land of the Veneti,*
   Mr. Earle M. Parker, Northern State Normal School.
15. Greek Theism in the Light of Modern Psychology,
   Orland O. Norris, Michigan State Normal College.
16. The Patterns of the Roman Toga, as illustrated by the Statues,*
   Professor C. F. Ross, Allegheny College.

3:10 o'clock.

17. Lecture: The Excavations in Crete,*
   Professor M. L. D'Ooge, University of Michigan.

ENGLISH CONFERENCE

(Admission by badge.)

Friday Afternoon, April 1

2:00 o'clock.

AUDITORIUM, HIGH SCHOOL.

Chairman: Professor F. N. Scott, University.
Secretary: Miss Sara Whedon, Ann Arbor.

I. The New Course in English in the Detroit Central High School,
   Mr. E. L. Miller, Detroit Central High School.
II. A Disputation in Spelling:
   1. Wild Spellings that I have met,
   Mr. H. A. Kenyon, University of Michigan.

*Illustrated with the stereopticon.

2. The Spelling Bogie: A Heterodox Opinion,
   Dr. H. P. Breitenbach, University of Michigan.
3. From the Teacher's Point of View, would Simplified Spelling be an Improvement on the Present Spelling,
   Miss Myra B. True, Grand Rapids, Mich.

III. The following question is proposed for discussion:
To what extent has the high school work in English, particularly the required work, succeeded in arousing a love for the English Classics?

MODERN LANGUAGE CONFERENCE

Wednesday Afternoon, March 30

2:00 o'clock.

ROOM G, UNIVERSITY HALL.

Chairman: Professor J. A. C. Hildner, University of Michigan.
Secretary: Miss Marie Gregg, Detroit Central High School.
A Symposium on the German "Gymnasium," and Related Schools.

1. The "Realschule,"
   Mr. C. L. W. Meyer, University.
2. The "Landwirtschaftsschule,"
   Dr. H. T. A. deL. Hus, University.
3. The "Gymnasium" as it used to be,
   Professor Ewald Boucke, University.
4. Athletics in the "Gymnasium" of today,
   Dr. Albert O. Lee, University.
5. Methods of Instruction,
   Dr. Lee Hollander, University.
6. Teacher and Pupil,
   Dr. Walter Haupt, University.

Thursday Afternoon, March 31

2:00 o'clock.

ROOM G, UNIVERSITY HALL.

Chairman: Professor A. G. Canfield, University of Michigan.

7. The Humanizing of Modern Language Study,
   Miss Nellie Hamilton, Decatur High School, Decatur, Ill.
8. Some Expedients in Teaching French,
   Miss Bertha Williams, Flint High School.
9. Texts for the First Year in French,
   Miss Mary A. Horrigan, Negaunee High School.
10. The Reign of the Practical,
    Miss Alice Rothmann, Ann Arbor High School.

11. Are the Demands of the First Two Years of German too Great for the Average Pupil,
Miss Adele Klein, Eastern High School, Detroit.

Friday Afternoon, April 1

2:00 o'clock.

ROOM G, UNIVERSITY HALL.

Chairman: Professor Max Winkler, University of Michigan.

12. The Value of German as a Mental Discipline,
Mr. Rudolph Guder, Saginaw High School.
13. Principles that Should Guide the Teacher in Selecting the Reading in High School German,
Professor Johannes Zedler, Albion College.
14. To what Extent may we Use the German Language in the Class-room? Is it Worth While?
Mr. Karl Klœpfer, Akron High School, Akron, O.
15. Freshman German in the High School,
Principal W. R. Goodrich, Owosso High School.

DRAWING CONFERENCE

Friday Afternoon, April 1

2:00 o'clock.

ROOM 445, TOP FLOOR (NORTH END) NEW ENGINEERING BUILDING.

Chairman: Professor Emil Lorch, University of Michigan.
Secretary: Miss Annie H. Olmsted, State Normal College.

TOPIC:—The Teaching of Drawing in the High School.
NOTE.—Under Drawing are included Freehand and Mechanical Drawing, Design and Water Color.

1. What kinds of Drawing should be taught in the High School?
Miss Virginia M. Jackson, Eastern High School, Detroit.
2. How can Drawing best serve the needs of those who do not attend College?
Professor Emil Lorch, University of Michigan.
3. What technical applications of Drawing may profitably be taught in High School?
Professor Percy Ash, University of Michigan.
4. What credit should be given in the University or technical school, for drawing done in the High School?
Mrs. Anne S. Batchellor, Olivet College, and
Professor C. S. Denison, University of Michigan.
5. How should the teaching of Drawing in the grade school be related to that of the High School?
Miss Bertha Goodison, Michigan Normal College.
Miss Alabama Brenton, Supervisor, Muskegon, Mich.

6. What kind of training is most desirable as a preparation for teaching Drawing in the High School?
   Miss Annie H. Olmsted, Michigan State Normal College.

   An Exhibit of Drawing from various Colleges and High Schools of the State will be held in the Architectural drafting room, top floor of the New Engineering Building.

CONFERENCE OF PHYSICS AND CHEMISTRY

(Admission by badge.)

Thursday Afternoon, March 31

1:30 o'clock.

PHYSICAL LABORATORY, WEST LECTURE ROOM.

Chairman: Mr. N. H. Williams, University of Michigan.
Secretary: Professor C. L. Herron, Hillsdale College.

1. Accessories to the Work in Chemistry,
   Mr. B. J. Rivett, Detroit Central.
2. Magneto-striction,
   Mr. D. L. Rich, University.
3. The Chord of Nature,
   Mr. W. B. Borgers, Grand Rapids.
4. Preparation of Students before electing Chemistry,
   Mr. D. H. Davis, Detroit Central.
5. Some effects of the silent discharge from an induction coil,
   Mr. W. W. Sleator, University.
6. A Pendulum Contact,
   Mr. L. B. Mann, Detroit Central.
7. Theories of Solution,
   Dr. S. C. Lind, University of Michigan.

Friday Afternoon, April 1

1:30 o'clock.

PHYSICAL LABORATORY, WEST LECTURE ROOM.

8. Undercooling by the use of Sodium Thiosulphate,
   Mr. C. L. Sickley, Detroit Central.
9. Physics from the point of view of a Teacher of the Classics,
   Miss Rose Anderson, Smead School, Toledo.
10. A New Electroscope,
    Mr. C. F. Adams, Detroit Central.
11. Color Disc,
    Mr. W. B. Borgers, Grand Rapids.
12. Preparation of High School Students for Medical Chemistry,
    Dr. F. L. Stevenson, Detroit College of Medicine.

13. Preparation of High School Students for Commercial Chemistry,
Mr. Arthur B. Connor, Detroit Chemical Works.

Friday Evening, April 1
8:00 o'clock.

LECTURE ROOM, NEW CHEMICAL LABORATORY.

Address: A Scientific Revolution,
Professor Wm. A. Noyes, University of Illinois.

MATHEMATICAL CONFERENCE

(Admission by badge.)

Friday Afternoon, April 1
1:45 o'clock.

TAPPAN HALL.

1. What can the High School expect of the College in Mathematical Training,
Professor E. R. Sleight, Albion College.
2. Hindoo Numerals with Place Value,
Dr. L. C. Karpinski, Columbia University.
3. The Place of Mathematics in a High School Course of Study,
Mr. J. P. Everett, State Normal College.

HISTORY CONFERENCE

(Admission by badge.)

Thursday Afternoon
1:45 o'clock.

ROOM C-3, HIGH SCHOOL.

Chairman: Principal J. B. Davis, Grand Rapids.
Secretary: Miss Lucy E. Elliott, Detroit Eastern.

1. Aids to Visualization in History as exhibited in New York,
Professor F. L. Paxon, University.
2. The Secondary History Program at the Quarter Centenary of the American Historical Association,
Miss Mary Hinsdale, Grand Rapids.
3. The Status of History Teaching in Michigan,
Principal R. R. N. Gould, Kalamazoo.

Friday Afternoon
1:45 o'clock.

ROOM B-8, HIGH SCHOOL.

Chairman: Principal J. B. Davis, Grand Rapids.

Round Table Discussion on the Report of the University of Indiana on "Teaching of History."

BIOLOGICAL CONFERENCE

Joint Session with the Michigan Academy of Science.

Friday Afternoon, April 1

1:00 o'clock.

BOTANICAL LABORATORY, SOUTH WING, UNIVERSITY HALL.

Chairman: Professor Charles E. Barr, Albion College.
Secretary: Professor W. E. Praeger, Kalamazoo College.

1. The Humanistic Content of Biology,
   Dr. E. R. Downing, Northern Normal School.
2. High School Requirements in Biology,
   Professor W. E. Praeger, Kalamazoo College.
3. What Training should be required for High School Teachers in Biology?
   Dr. F. C. Newcombe, University of Michigan.

At 1 o'clock a luncheon will be served in the large Botanical Laboratory for which there will be a charge of twenty-five cents. It is hoped that a large number of the teachers of Biology will be present and avail themselves of the opportunity of getting acquainted with each other and with the members of the Academy.

The program will begin at 2 o'clock, sharp. In order to promote general participation, no formal leaders in the discussion have been arranged for.

Places at the Luncheon may be reserved by notifying Dr. Newcombe not later than one week before the meeting.

COMMERCIAL CONFERENCE

(Admission by badge.)

Thursday Afternoon, March 31

1:30 o'clock.

BOARD ROOM, HIGH SCHOOL.

Chairman: P. Roger Cleary, President Cleary College, Ypsilanti.
Secretary: D. W. McMillan, Detroit Western High School.

1. Commercial Geography—How I teach it and what I get out of it,
   Mr. W. W. Wier, Detroit Western High School.
   Discussion led by
   Professor Mark S. Jefferson, State Normal College.
2. The Problem of Initiative:
   a. From a Business Point of View,
      Mr. L. A. Paisley, Manager Modern Methods Pub. Co., Detroit.
   b. From an Educational Point of View,
      Mr. William B. Van Akin, Director Detroit Technical Institute.

Discussion led by
Mr. W. P. Needham, President Traverse City Business College.

3. What may be considered an Adequate Preparation for the duties of the average Business Position, and can and do our Public Schools and Business Colleges furnish it?
Mr. Clarence E. Bement, Secretary The Hildreth Mfg. Co., Lansing.
Discussion led by
Mr. M. T. Skinner, Hillsdale College.

Friday Afternoon, April 1

1:30 o'clock.

1. On to College or into Business, Which?
Professor N. A. Harvey, State Normal College.
Discussion led by
Mr. Woodbridge N. Ferris, President Ferris Institute, Big Rapids.

2. How may the generally conceded Lack of Preparation in English be remedied by our Public Schools and Business Colleges?
Mr. O. G. Frederick, Supervisor Grammar Grades, Detroit Public Schools.
Discussion led by
Professor Otto C. Marckwardt, University of Michigan.

3. What may reasonably be demanded of our Public Schools and Business Colleges in the Teaching of Bookkeeping and Accounting?
Mr. Howard C. Beck, Certified Public Accountant, Detroit.
Discussion
a. For the Public Schools,
Led by Mr. John S. Keys, Bay City, East Side, High School.
b. For the Business Colleges,
Led by Mr. L. C. Rauch, President The Business Institute, Detroit.

Saturday Morning, April 2

9:00 o'clock.

1. A Symposium on the teaching of Arithmetic, Bookkeeping, Business Correspondence and Customs, Shorthand, Typewriting and other commercial subjects.
Questions may be asked by those who desire information, and they will be answered by those who can give it.

This promises to be one of the most helpful sessions of the Conference to commercial teachers generally.

The following will lead in the discussion:

Mr. Charles E. LeFurge, Mt. Clemens.
Mr. D. W. Springer, Detroit.
Mr. O. V. Adams, Ann Arbor.
Miss Genevieve Cross, Allegan.
Mr. S. A. Moran, Ann Arbor.
Mr. E. E. Gardner, Lansing.
Mr. H. L. Griffin, Saginaw.

2. Business.

PHYSIOGRAPHY CONFERENCE

(Admission by badge.)

Wednesday Afternoon, March 30

1:30 o'clock.

MUSEUM LECTURE ROOM.

Chairman: Professor William H. Hobbs, University of Michigan.
Secretary: Superintendent F. W. Frostic, Croswell.

1. The teaching of physiography,
   Superintendent F. W. Frostic, Croswell.
2. The delta table, its construction and use,*
   Mr. L. M. Marshall, Bay City.
3. Samples of Michigan physiography,*
   Professor Mark W. Jefferson, Normal College.
4. Methods of Modelling for the laboratory,*
   Professor Wm. H. Hobbs, University.
5. Round table discussion upon methods of instruction in physiography,
   Led by Mr. Irving D. Scott, University.
6. The scope and method of a one-semester course in physiography,
   Mr. W. H. Hawkes, Ann Arbor High School.

*Illustrated with the stereopticon.

Members of the Schoolmasters' Club

Members for Three or More Consecutive Years

ADRIAN
Curtis, A. E.
Gallup, E. E.
ALBION COLLEGE
Demorest, F. C.
Greene, C. W.
ANN ARBOR
Adams, O. V.
Breed, Gertrude
Chute, H. N.
Essery, E. E.
Hawkes, W. H.
Jocelyn, L. P.
Montgomery, Jabez
Moran, S. A.
Porter Alice
Slauson, H. M.
Sturgis, Martha
Whedon, Sara
Wines, L. D.
BAY CITY
Ackerman, Emma C.
Gates, E. L.
Swain, G. R.
Sharpe, E. M.
Stewart, J. A.
Taylor, Harriet
BATTLE CREEK
Coburn, W. G.
Hickey, T. P.
BENTON HARBOR
Wright, W. R.
BERRIEN SPRINGS
Abell, E. L.
BIG RAPIDS
Green, Loa
BIRMINGHAM
Dudley, S. M.
CENTRAL NORMAL
Larzelere, C. S.
CHARLEVOIX
Lombard, Anna
CHICAGO, ILL.
Halsey, L. R.
Lobaugh, E. D.
Miner, R. S.
Nutt, H. D.
CLEARY'S BUS. COL.
Cleary, P. R.
COLDWATER
McElroy, E. M.
DETROIT
Arbury, F. W.
Highley, A. M.
Hull, L. C.
Spain, C. L.
DETROIT CASS
Cook, C. S.
Cooper, L. G.
Comfort, B. F.
Springer, D. W.
DETROIT CENTRAL
Adams, C. F.
Bartlett, A. E.
Bates, F. O.
Bechtel, G. G.
Bishop, Harriette A.
Bowerman, C. B.
Bromley, Lillian M.
Conover, L. Lenore
Copeland, Cornelia A.
Darnell, Albertus
Frost, H. H.
Gee, E. F.
Goldman, Miriam D.
Hull, Isabella H.
Irwin, F. C.
Jones, A. F.
Mackenzie, David
Nye, R. L.
DETROIT EASTERN
Bishop, J. R.
Kimball, Edith M.
Miner, Mary L.
Pettee, Edith E.
Struble, R. H.
DETROIT, HIGGINS
Roper, Gertrude L.
Taylor, Carrie L.
DET. HOME & DAY
Courtis, S. A.
DET., McMILLEN
Kibby, C. G.
Wagner, T. E.
DET. UNIV. SCHOOL
Bliss, F. L.
Milner, Florence
DETROIT WESTERN
Bates, Angie
Corns, J. H.
Frutig, Marie
Merrill, J. W.
Matthews, J. W.
McMillen, D. W.
Meiser, Augusta
Morse, W. A.
Phelps, Nancy
Wilkerson, A. O.
Weir, W. W.
EVANSVILLE, IND.
Hunnicutt, Gertrude O.
FENTON
Sexton, J. W.
FERRIS INSTITUTE
Ferris, W. N.
FLINT
Cody, A. N.
Gold, Mary E. S.
Wade, C. G.
GRAND RAPIDS
Davis, J. B.
Greeson, W. A.
Hulst, Corenlia S.
Jennings, Albert
Stearns, Frances L.
True, Myra B.
GRAND HAVEN
De Young, Julia
GREENVILLE
Katen, Isabelle
HASTINGS
Allison, Clara J.
Osborne, M. E.
HILLSDALE COL.
Mauck, J. W.
HOWELL
Sharpe, E. Alma
HOPE COLLEGE
Godfrey, A. T.
Krell, Carrie
Nykerk, J. B.
HUDSON
Miles, O. M.
JACKSON
Marsh, E. O.
KALAMAZOO
Gould, R. R. N.
Gregg, Jessie S.
Hartwell, S. O.

KALAMAZOO COL.
Praeger, W. E.
Williams, G. A.
Williams, C. B.
LANSING
Atkins, Edith E.
Pattengill, H. R.
Wright, L. L.
MANCHESTER
Kirchhoffer, Marie
MILAN
Gemberling, J. B.
MONROE
Gilday, Selma
MT. CLEMENS
Blair, Harold
NILES
Allen, Hilah L.
NORMAL COLLEGE
Buell, Bertha G.
D'Ooge, B. L.
Everett, J. P.
Harvey, N. A.
Jones, L. H.
Laird, S. B.
Lyman, E. A.
Peet, B. W.
Strong, E. A.
Wilber, H. Z.
OAK PARK, ILL.
Lee, L. B.
OLIVET COLLEGE
Lancaster, E. G.
Oliphant, S. G.
OXFORD
Fuller, T. U.
PONTIAC
McCarroll, Sarah
Travis, Ora
PORT HURON
Chapen, Allie
Crane, Mrs. S. A.
Davis, H. A.
Easton, A. J.
Lewis, W. F.
M'Fadzean, Kate
Schmitt, J. J.
PLYMOUTH
Isbell, W. N.
SAGINAW
Bricker, J. I.
Fuerstenau, Dorothy
Warner, W. W.
Warriner, E. C.
Whitney, W. L.
ST. JOHNS
Daboll, Winifred C.
ST. LOUIS
Forsythe, L. L.
SEATTLE, WASH.
Maul, E. G.
TECUMSEH
McAlpine, R. K.
THREE RIVERS
Tyler, L. L.
TRAVERSE CITY
Curtis, G. H.
UNIVERSITY
Angell, James B.
Beman, W. W.
Bonner, Campbell
Bradshaw, J. W.
Canfield, A. G.
Cross, A. L.
Dennison, Walter
Diekhoff, Tobias
Dow, E. W.
Finney, B. A.
Hall, A. G.
Henderson, W. D.
Hobbs, W. H.
Hudson, Richard
Kelsey, F. W.
Lichty, D. M.
Markley, J. L.
Marquardt, O. C.
Marsh, F. B.
Meader, C. L.
Mellencamp, F. J.
Newcombe, F. C.
Patterson, G. W.
Reed, J. O.
Running, Theo. R.
Smeaton, W. G.
Tilley, M. P.
Van Tyne, C. H.
Whitney, A. S.
Winkler, Max
Ziwet, Alex.
WESTERN NORMAL
Burnham ,Ernest
Waldo, D. B.
YPSILANTI
Arbaugh, W. B.
Ross, DeForest

List of Members for 1911

ADRIAN
Best, Sarah
Corbus, Adelle L.
Curtis, A. E.
Gallup, E. E.
Irish, Ella P.
Mickens, C. W.
Priddy, Bessie
Reed, E. J.
Schaible, Clara
ADRIAN COLLEGE
Jones, E. M.
West, E. D.
ALBION
Langworthy, F. M.
MrDairmid, L. A.
Pratt, Belle
Shinn, Eugenie
ALBION COLLEGE
Demorest, F. C.
Green, C. W.
Lutz, F.
Sleight, E. R.
ANN ARBOR
Adams, O. V.
Bennett, Ella
Breed, Gertrude
Bohn, Maud T.
Bell, H. E.
Brightman, Hazel
Chute, H. N.
Essery, E. E.
Gass, O. M.
Gee, A. O.
Goodell, Maude
Gundert, Emily
Hawkes, W. H.
Hinsdale, Miss
Hodson, Catherine E.
Jocelyn, L. P.
Kittridge, Elizabeth
Lusby, Lulu V.
Mann, L. W.
McCain, A. B.
Moran, S. A.
Montgomery, Jabez
O'Brien, Sara
Porter, Alice
Purtell, Catherine
Ray, Anna M.
Robison, Cora
Rosenthal, Henrietta
Rothman, Alice
Slauson, H. M.
Smalley, A. W.
Stowe, Genevieve
Sturgis, Martha
Walsh, May
Whedon, Sara
Wines, L. D.
Wurster, Anna
AUGUSTA
Jackson, C. H.
Jackson, Mrs. C. H.
Moore, Livia
BAD AXE
Sawyer, P. N.
BATTLE CREEK
Barker, A. L.

Brigham, E. M.
Coburn, W. G.
Hickey, T. P.
Martin, Helen M.
Puffer, R. A.
Traut, C. E.

BAY CITY
Ackerman, Emma C.
Baker, May L.
Beese, Julia H.
Brown, L. N.
Gates, E. L.
Hunker, Emma G.
Kern, Kate
Keys, J. H.
Liskow, Julia
Marshall, L. M.
Sharpe, E. M.
Skinner, G. S.
Steele, Margary
Stewart, J. A.
Swain, G. R.
Taylor, Harriet L.

BELDING
MacKay, Anna

BENTON HARBOR
Wright, W. R.

BERRIEN SPRINGS
Abell, E. L.

BIG RAPIDS
Green, Loa
Stetson, P. C.

BIRMINGHAM
Baum, Leora
Cortright, Floy
Dudley, S. M.
Starr, Rhoda

BOYNE CITY
Butler, L. A.

BOYNE FALLS
Callaghan, M. M.

BRIGHTON
Burgess, Geo.

BUCHANAN
Moore, I. M.

CADILLAC
McGee, G. A.
Porter, J. E.
Whitney, Edw.

CASS CITY
Winter, J. E.

CENTRAL NORMAL
Barnard, Anna M.
Calkins, R. D.
Larzelere, C. S.
Wentworth, W. H.

CHARLEVOIX
DeVoe, I. M.
Lombard, Anna

CHARLOTTE
Bishop, E. J.
Snell, Ida L.
Woodman, Winifred

CHEBOYGAN
Rufener, G. M.

CHELSEA
Hendry, Frank

CHESANING
Chase Alberta
Schultz, A. F.

CHICAGO, ILL.
Ambrose, Thomas
Bacon, P. V.
Boyer, C. J.
Burr, E. J.
Button, W. J.
Evans, C. P.
Eagleson, Stuart
Halsey, L. R.
Johnson, H. M.
Lobaugh, E. D.
Miner, R. S.
Nutt, H. D.
Taber, C. W.
Wilkinson, E. W.
Swiggett, D. W.

CLEARY'S BUS. COL.
Burgess, Oscar
Cleary, P. R.
Scudder, Guy

CLINTON
Hazelton, R.

COLDWATER
McElroy, E. M.

CROSSWELL
Frostic, F. W.

DAVIDSON
Skinner, S. J.

DEARBORN
Salisbury, H. A.

DECATUR, ILL.
Hamilton, Nellie

DETROIT
Arbury, F. W.
Beverly, Clara
Cornwell, H. D.
Frederick, O. G.
Guysi, Jeannette
Guysi, Alice V.
Highley, A. M.
Hull, L. C.
Martindale, W. C.
Miller, J. R.
Parsons, W. D.
Rauch, L. C.
Skeels, A. D.
Spain, C. L.
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